Virginia Immunization Information System

HL7 – 2.4 & Real-time Transfer Specification

GTS Version 8.0.1

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Introduction

The Virginia Immunization Information System (VIIS) has made available an interactive user interface on the World Wide Web for authorized users to enter, query and update client immunization records. The Web interface makes VIIS information and functions available on desktops around the state. However, some immunization providers already store and process similar data in their own information systems and may wish to keep using those systems while also participating in the statewide central repository. Others may have different billing needs and may decide they don't want to enter data into two diverse systems. VIIS has been enhanced to accept HL7 Version 2.4 for batch loads to submit client and immunization information to the VIIS. VIIS has also allows providers to submit client and immunization information using HL7 2.4 formatted VXQ^V01 Message (Query for Vaccination Record) and a VXU^V04 Message (Unsolicited Vaccination Update) and receive from VIIS the resulting HL7 2.4 Response Message in real time. Specifications for HL7 2.4 Real-time start on page 16.

The Health Level Seven (HL7) Standard

The ANSI HL7 standard is widely used for data exchange in the health care industry. The full standard is quite lengthy, covering a variety of situations in patient care and health care finance and no single application is likely to use all of its content. The CDC has worked with HL7 developers to create a set of messages that permit exchange of immunization data. This document covers the subset of HL7 that will be used for client and immunization records exchanged between VIIS and outside systems.

- The basic unit transmitted in an HL7 implementation is the **message**.
- Messages are made up of several **segments**, each of which is one line of text, beginning with a three-letter code identifying the segment type.
- Segments are in turn made up of several **fields** separated by a delimiter character, "|".

```
MSH|^~\&|VALLEY CLINIC^^^|||VIIS^^^|19991005032342||VXU^V04|682299|P^|2.4^^|||ER
PID|||79928^^^^PI|A5SMIT0071^^^^^||SMITH^MARY^T^^^^^|JOHNSON^^^^^^^|19951212|F
RXA|0|999|19970903|19970903|^^^90701^DTP^CPT
```

The details of how HL7 messages are put together, for VIIS purposes, will be explained later in this document. The example above shows the essentials of what a message looks like. In this example, a message is being sent on behalf of Valley Clinic to VIIS. The message consists of three segments. NOTE: Valley Clinic may or may not be the actual transmitter of the message. The transmitter of the message will be identified by VIIS from log-in information and not from an HL7 message.

- The Message Header segment (**MSH**) identifies the owner (**VALLEY CLINIC**) of the information being sent and the receiver (**VIIS**). It also identifies the message as being of type **VXU.** The VXU is an Unsolicited Vaccination Record Update, which is one of the message types defined by HL7.
- The Patient Identification segment (**PID**) gives the client's name (MARY T SMITH), birth date (19951212, in YYYYMMDD format), and other identifying fields.
- The Pharmacy Administration segment (**RXA**) tells that a DTP vaccine, with CPT code 90701, was administered on September 3, 1997 (formatted as 19970903). Many fields are optional and this example may have more information included in it. Some segments can be repeated within a single message. In this example, the message could have included a second RXA segment to record another immunization given.

HL7 does not specify how messages are transmitted. It is flexible enough to be used for both real-time interaction and large batches. The standard defines file header and file trailer segments that are used when a number of messages are gathered into a batch for transmission as a file. VIIS will use batch files of messages to communicate with outside systems.

Scope of This Document

The General Transfer Specification (GTS) documented here supports automated exchange of data between the VIIS repository and outside systems. This allows both the client and immunization records to be available in both systems, so as to avoid the need to enter data twice. The remainder of this document specifies how HL7 file messages are constructed for the purposes of VIIS. It does not cover the methods that are used to transmit files between the VIIS central repository and outside systems. It covers only a small subset of the very extensive HL7 standard. Files of messages constructed from the guidelines in this document will fall within the HL7 standard, but there is a wide variety of other possible HL7 messages that are outside the scope of this document.

References

- See Version 2.1 (September 2002) of the Health Level 7 standard for a full description of all messages, segments, and fields. Information regarding HL7 is at www.hl7.org.
- The National Immunization Program within the Center for Disease Control (www.cdc.gov/nip) has published an Implementation Guide for Immunization Data with the purpose of keeping the use of HL7 for immunization data as uniform as possible.

HL7 Message Types Used in VIIS Transmissions

VIIS uses three message types: ADT, VXU and ACK. The ADT is used for sending client data without any immunizations. The VXU is used for sending client data and immunizations. The ACK is used to acknowledge to the sender that a message has been received. The tables below show the segments that are used to construct each message type. Each segment is one line of text ending with the carriage return character. The carriage return is needed so that the HL7 messages are readable and printable. The messages may appear somewhat cryptic due to the scarcity of white space. (The standard has provisions for inclusion of binary data, but VIIS will not use these features.) Square brackets [ ] enclose optional segments and curly braces {} enclose segments that can be repeated; thus, an ADT message type could be composed of just MSH and PID segments. Also, any number of NK1 segments could be included in the message. The full HL7 standard allows additional segments within these message types, but they are unused by VIIS. In order to remain compliant with HL7, their use will not result in an error, but the recipient can ignore the content of the message. The segments that are documented here are sufficient to support the principal VIIS functions of storing data about clients and immunizations.

ADT

Update Patient Information

MSH	Message Header
PID	Patient Identification
[{NK1}]	Next of Kin / Associated Parties
[{*OBX}]	Observation/Result

VXU

Unsolicited Vaccination Record Update

MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographic
[{NK1}]	Next of Kin / Associated Parties
[PV1]	Patient Visit
{RXA}	Pharmacy / Treatment Administration
[RXR]	Pharmacy / Treatment Route (Only one RXR per RXA segment)
[{OBX}]	Observation/Result*

ACK

General Acknowledgment

MSH	Message Header
MSA	Message Acknowledgment
[ERR]	Error

*The only OBX segment that is valid within an ADT message is one that specifies a CONTRAINDICATION in the OBX-03 Value Type field. (i.e., 30945-0^Contraindication^LN)

RECOMMENDATIONS:

VIIS will NOT accept an ADT message (unsolicited demographic update) for a new client unless at least ONE immunization exists for that client in VIIS. Therefore, it is best to include the demographic information in a VXU message whenever possible, as this message type accommodates BOTH immunization information and demographic update information. If submitting a new client, using the ADT message, it must follow the VXU message for the new client within the file.

When a VXU^V04 (Unsolicited Vaccination Record Update) message type is sent with no RXA segment, a check is done to verify if the client exists in VIIS or not. If the client already exists in VIIS, then the demographic update will occur (*if all other update business rules apply). If the client is new to VIIS, then the client will be rejected per current business rules.

Message Segments: Field Specifications and Usage

HL7 Segment Structure

Each segment consists of several fields that are separated by "|", which is the field separator character. The tables below define how each segment is structured and contain the following columns:

1. **SEQ** The ordinal position of the field in the segment. Since VIIS does not use all possible fields in the HL7 standard, these are not always consecutive.
2. **LEN** Maximum length of the field
3. **DT** HL7 data type of the field. See below for definition of HL7 data types.
4. **R/M** R means required by HL7, and M means mandatory for VIIS. Blank indicates an optional field.
5. **RP/#** Y means the field may be repeated any number of times, an integer gives the maximum number of repetitions, and a blank means no repetition is permitted.
6. **TBL#** Number of the table giving valid values for the field.
7. **ELEMENT NAME** HL7 name for the field.

- **HL7 data types.** Each field has an HL7 data type. Appendix A of this document lists and defines the HL7 data types needed for VIIS. The elemental data types Numeric (NM) and String (ST) consist of one value, while some data types, such as Extended Person Name (XPN) are composites.
- **Delimiter characters.** Field values of composite data types consist of several components separated by the **component separator**, "^". When components are further divided into sub-components, these are separated by the **sub-component separator**, "&". Some fields are defined to permit repetition separated by the **repetition character**, "~". When these special characters need to be included within text data, their special interpretations are prevented by preceding them with the **escape character**, "\".

```
MSH|^~\&| …..
XXX|field1|component1^component2^subcomponent3.1&subcomponent3.2^component4|  …..
YYY|repetition1~repetition2| …..
ZZZ|data includes escaped \|\~ special characters| …..
```

In the example above, the Message Header segment uses the field separator, "|", immediately after the "MSH" code that identifies the segment. This establishes what character serves as the field separator throughout the message. The next field, the four characters "^~\&", establishes, in order, the component separator character, the repetition character, the escape character, and the sub-component separator character that will apply throughout the message. The hypothetical "XXX" segment includes field1 with no internal structure, but the next field has several components separated by "^", and the third of these is made up of two sub-components separated by "&". The hypothetical "YYY" segment's first field permits repetition, in this example the two values "repetition1" and "repetition2". The hypothetical "ZZZ" segment's field has a text value that includes the characters "|~", and these are escaped to prevent their normal structural interpretation.

In VIIS, sub-components, repetition and text values requiring the escape character will be rare. Components within fields are common, since names and addresses are represented this way. HL7 permits the use of other delimiters besides the recommended ones and the delimiters used in each message are given in the Message Header segment. VIIS will always use the recommended delimiters when sending files and requires their use for files received.

Rules for Sending Systems

The following rules are used by sending systems to construct HL7 messages.

- Encode each segment in the order specified in the message format.
- Begin the segment with the 3-letter segment ID (for example RXA).
- Precede each field with the data field separator ("|").
- Use HL7 recommended encoding characters ("^~\&").
- Encode the data fields in the order given in the table defining segment structure.
- Encode the data field according to its HL7 data type format.
- Do not include any characters for fields not present in the segment. Since later fields in the segment are encoded by ordinal position, fields that are not present do not reduce the number of field separators in the segment. For example, when the second and third fields are not present, the field separators maintain the ordinal position of the fourth field: |field1|||field4
- Data fields that are present but explicitly null are represented by empty double quotes "".
- Trailing separators may optionally be omitted. For example, |field1|field2||||| is equivalent to |field1|field2, when field3 and subsequent fields are not present.

- End each segment with the segment terminator (always the carriage return character, ASCII hex 0D).

The following rules are used by receiving systems to process HL7 messages.

- Treat data segments that are expected but not present as if all data fields in the segment were not present.
- Require use of HL7 recommended Field Separator |, and Encoding characters ^~\& for encoding messages.
- Ignore any data segment that is included but not expected, rather than treating it as an error. The HL7 message types used by VIIS may include many segments besides the ones in this document, and VIIS ignores them. VIIS will not send messages with segments not documented in this specification, but reserves the right to specify more segments at a later date. The rule to ignore unexpected segments facilitates this kind of change.
- Ignore data fields found but not expected within a segment.

The message segments below are needed to construct message types that are used by VIIS. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since VIIS does not use all the fields that HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, their field separators remain in order to indicate that the next field present is the fourth: field1|||field4 .

ERR

The ERR segment is used to add error comments to acknowledgment messages.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	80	CM	R	Y		Error Code and Location

Field Notes:

ERR-1 A composite field with four components.

<segment ID (ST)>^<sequence (NM)>^<field position (NM)>^<field component ordinal number (NM)

The first component identifies the segment ID containing the error. The second component identifies the input file line number of the segment containing the error. The third component identifies by ordinal number the field containing the error. The fourth component identifies, by ordinal number, the field component containing the error (0 is used if not applicable) The remaining five components of the CE data type are not valued and their '^' separators are not generated. Note that error text is transmitted in field MSA-3. For example, if the NK1 segment is missing a mandatory field:

ERR|NK1^10^2^1

This error message identifies the NK1 segment occurring on line 10 of the input file whose mandatory second field (Name) is missing the mandatory 1st component (Family Name).

MSA

The MSA segment contains information sent while acknowledging another message.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0008	Acknowledgment Code
2	20	ST	R			Message Control ID
3	80	ST				Text Message

Field Notes:

MSA-1 Acknowledgement code giving receiver's response to a message. AA (Application Accept) means the message was processed normally. AE (Application Error) means an error prevented normal processing. An error message will be put in MSA-3, and for ACK messages the optional ERR segment will be included.

MSA-2 The message control ID from MSH-10 in the message being acknowledged. This allows the sending system to associate this response with the message being responded to.

MSA-3 Text of error message, used when MSA-1 does not have the normal value of AA.

MSH

The MSH segment defines the intent, source, destination and some specifics of the syntax of a message.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	1	ST	R			Field Separator
2	4	ST	R			Encoding Characters
3	180	HD				Sending Application
4	180	HD				Sending Facility
5	180	HD				Receiving Application
6	180	HD				Receiving Facility
7	26	TS				Date/Time Of Message
9	7	CM	R			Message Type
10	20	ST	R			Message Control ID
11	3	PT	R		0103	Processing ID
12	60	VID	R		0104	Version ID
15	2	ID			0155	Accept Acknowledgment Type

Field Notes:

MSH-1 Determines the field separator in effect for the rest of this message. VIIS requires the HL7 recommended field separator of "|".

MSH-2 Determines the component separator, repetition separator, escape character, and sub-component separator in effect for the rest of this message. VIIS requires the HL7 recommended values of ^~\&.

MSH-3 Name of the sending application. When sending, VIIS will use "VIIS" followed by the current version number of the registry. This field is an optional convenience. See MSH-4 and MSH-6 for the fields principally used to identify sender and receiver of the message.

MSH-4 Identifies for whom the message is being sent (the owner of the message information). When sending, VIIS will use "VIIS". When the message is being sent to VIIS and the Provider Organization owning the information is different than the organization transmitting the message, use either the VIIS Provider ID of the Provider Organization that owns the information preceded by a component separator (e.g., ^36^) or the short Provider Organization name (e.g., VIIS^^.) Contact the VIIS Help Desk for the appropriate organization ID. If the owner of the information and the transmitter of the information are the same Provider Organization, this field can be left blank.

MSH-6 Identifies the message receiver. When sending, VIIS will use the short Provider Organization name assigned when the provider first registers with the VIIS database and VIIS-Web interface.

MSH-7 Date and time the message was created. VIIS ignores any time component. See the TS data type.

MSH-9 This is a required field. Two components of this field give the HL7 message type (see Table 0076) and the HL7 triggering event (see Table 0003). Within HL7, the triggering event is considered to be the real-world circumstance causing the message to be sent. For VIIS purposes, this field should have the value ADT^A31 for a message conveying client information or the value VXU^V04 for a message conveying client and immunization information. In acknowledgement messages the value ACK is sufficient and the second component may be omitted.

MSH-10 This is a required field. Message rejection will result if nothing is received in this field. The message control ID is a string (which may be a number) uniquely identifying the message among all those ever sent by the sending system. It is assigned by the sending system and echoed back in the ACK message sent in response.

MSH-11 The processing ID to be used by VIIS is **P** for production processing. If this field is null, an informational message is generated indicating that VIIS is defaulting to **P**.

MSH-12 This is a required field. For the parser, the version number that is read in the first MSH segment, of the file, will be the version assumed for the whole file. For example, use a value of "2.3.1" to indicate HL7 Version 2.3.1or "2.4" to indicate HL7 Version 2.4. If there is no version number found in the first MSH segment, a hard error will occur and the file will not be processed.

**For VIIS to PO providers, the Exchange Data screen will need to be set to the version number that the organization has selected, in which to receive their data files. Setting the version number "tells" the writer which HL7 version format to use when generating the file in (the default will be the most recent version).

MSH-15 This field controls whether an acknowledgement is generated for the message sent. VIIS suggests a value of ER to ask that acknowledgements be sent only for messages that cannot be processed normally. If the field is empty, VIIS will assume the value of ER.

PID

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
3	20	CX	R	Y	0203	Patient ID (Internal ID)
5	48	XPN	R	Y		Patient Name
6	48	XPN		Y		Mother's Maiden Name
7	26	TS	M			Date/Time of Birth
8	1	IS			0001	Sex
10	80	CE		Y	0005	Race
11	106	XAD		Y		Patient Address
13	40	XTN				Phone number – home
19	16	ST				SSN Number – Patient
22	80	CE		Y	0189	Ethnic Group
24	1	ID			0136	Multiple Birth Indicator
25	2	NM				Birth Order
29	26	TS				Patient Death Date and Time

Field Notes:

PID-3 Sub-components 1 (ID) and 5 (identifier type code) are required in the PID-3 field. When a Provider Organization is sending to VIIS, use the sending system's Chart Number or other identifier if available. When VIIS is sending to an outside system it will use the client's VIIS ID and chart number when it is available.

PID-5 See the XPN data type. Last name and first name are required in the first two components. If the Name Type Code component is included, use L-Legal ***NOTE: If client does not have a first name,*** **NO FIRST NAME** ***must be entered.*** VIIS does not support repetition of this field.

PID-6 See the XPN data type. In this context, where the mother's name is used for client identification, VIIS uses only last name and first name. A mother's legal name might also appear in the context of an NK1 segment. VIIS does not support repetition of this field.

PID-7 Give the year, month, and day of birth (YYYYMMDD). VIIS ignores any time component.

PID-8 See Table 0001. Use F, M, or U.

PID-10 See Table 0005. VIIS stores and writes "Unknown" values as null. VIIS does not support repetition of this field.

PID-11 See the XAD data type. VIIS does not support repetition of this field.

PID-13 See the XTN data type. Version 2.4 includes the support of the N, X, B and C sequences. VIIS does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code (ID) from table 0201) VIIS will use the 6th 7th 8th and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, VIIS will assume that the phone number is specified in the first component in the [NNN][(999)]999-9999[X99999][B99999][C any text] format

PID-19 NOTE: Social security number is used for identification purposes only, and is not displayed in screens or distributed to Provider Organizations. Support of PID-19 is for backwards compatibility only. VIIS recommends its specification in PID-03.

PID-22 See Table 0189. VIIS stores and writes "Unknown" values as null. VIIS supports repetition of this field.

PID-24 Use **Y** to indicate that the client was born in a multiple birth.

PID-25 Relevant when client was born in a multiple birth. Use 1 for the first born, 2 for the second, etc. This field is useful in matching client data to existing records.

PID-29 The date of death, if client is deceased. Give the year, month, and day (YYYYMMDD). VIIS ignores any time component. If a death date is sent, then the Patient Registry Status in PD1-14 must indicate a value of "P" for permanently inactive/deceased.

PD1

The PD1 carries patient additional demographic information that is likely to change.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
11	80	CE			0215	Publicity Code
12	1	ID			0136	Protection Indicator
13	8	DT				Protection Indicator effective date
14	250	XON				Place of Worship
15	250	CE				Advance directive code
16	1	IS			0441	Immunization registry status
17	8	DT				Immunization registry status effective date
18	8	DT				Publicity Code effective date

Field Notes:

PD1-11 Controls whether recall/reminder notices are sent. VIIS will recognize "01" to indicate no recall/reminder notices or "02" recall/reminder notices any method.

PD1-12 Controls visibility of records to other organizations. Indicates whether or not consent has been given (or assumed) for record sharing. Three values include: **Null** – patient/guardian has not yet been asked to give consent to share or has not responded, **Y** – sharing is allowed and **N**- sharing is not allowed.

PD1-13 Effective date for protection indicator reported in PD1-12. Format is YYYYMMDD.

PD1-16 Identifies the registry status of the patient. See table 0441.

PD1-17 Effective date for registry status reported in PD1-16. Format is YYYYMMDD.

PD1-18 Effective date for publicity code reported in PD1-11. Format is YYYYMMDD.

NK1

The NK1 segment contains information about the patient's other related parties. Any associated parties may be identified. Utilizing *NK1-1-set ID*, multiple NK1 segments can be sent to patient accounts.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	4	SI	R			Set ID - NK1
2	48	XPN		Y		Name
3	60	CE			0063	Relationship
4	106	XAD		Y		Address
5	40	XTN		Y		Phone Number

Field Notes:

NK1-1 Sequential numbers. Use "1" for the first NK1 within the message, "2" for the second, and so forth. Although this field is required by HL7, VIIS will ignore its value, and there is no requirement that the record for the same responsible person keep the same sequence number across multiple messages, in the case that information from the same record is transmitted more than once.

NK1-2 Name of the responsible person who cares for the client. See the XPN data type. VIIS does not support repetition of this field.

NK1-3 Relationship of the responsible person to the client. See data type CE and Table 0063 in the HL7 tables. Use the first three components of the CE data type, for example |MTH^Mother^HL70063|.

NK1-4 Responsible person's mailing address. See the XAD data type. VIIS does not support repetition of this field.

NK1-5 Responsible person's phone number. VIIS does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code (ID) from table 0201) VIIS will use the 6^{th} 7^{th} 8^{th} and 9^{th} components for specification of area code, phone number, extension and text, respectively. Otherwise, VIIS will assume that the phone number is specified in the first component in the [NNN] [(999)]999-9999[X99999][B99999][C any text] format.

PV1

The PV1 segment is used to send visit-specific information.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
2	1	IS	R		0004	Patient Class
20	50	FC	M	Y	0064	Financial Class

***Field Notes**:*

PV1-2 See table 0004. VIIS will store and write a value of "R" (recurring patient) for this field.

PV1-20 See table 0064. VIIS defines this field as a required field. If an invalid financial class or date format is received, an INFORMATIONAL error message is generated. The entire message is NOT rejected, as this is an optional HL7 segment.

Example:

FHS|^~\&||VIIS|||200810140632||immun.dat||IMM

BHS|^~\&||VIIS|||200810140632|||||

MSH|^~\&||VIIS|||||VXU^V04|20081014063220000351956|T|2.3.1

PID|||Chart123^^^^PI^~1234567^^^^SR^||Lastname^Firstname^MI^^^|^^^^^|20060101|F||^^^^^|123 MAIN ST^^MADISON^WI^53713^USA^^^^||(608)555-1212|||||||||^^^^^|^^||||||

NK1|1|Lastname^Firstname^MI^^^|SEL^SELF^HL70063^^^|123 MAIN ST^^MADISON^WI^53713^USA^^^^|(608)555-1212^^^^^^^^|

PV1||R|||||||||||||||||||V04^20061017~V03^20071202

RXA|0|999|20061017|20061017|^^^90748^HepB-Hib^CPT|0|||01^^^^^||||||||||||

RXA|0|999|20031202|20071202|^^^90656^Preservative-Free Influenza^CPT|0.50|ML||00^^^^^|^ClinicianLast^ClinicianFirst^^^^^^^^^^|^^^Clinic^^^^^^^^^^^^||||Lot Number||EVN^Evans Medical Limited^MVX^^^|||||

BTS|1|

FTS|1|

RXA

The RXA carries pharmacy administration data. It is a repeating segment and can record unlimited numbers of vaccinations.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	4	NM	R			Give Sub-ID Counter
2	4	NM	R			Administration Sub-ID Counter
3	26	TS	R			Date/Time Start of Administration
4	26	TS	R			Date/Time End of Administration
5	100	CE	R			Administered Code
6	20	NM	R			Administered Amount
9	200	CE		Y	NIP001	Administration Notes
10	200	XCN		Y		Administering Provider
11	200	CM				Administered-at location
15	20	ST		Y		Substance Lot Number
17	60	CE		Y	0227	Substance Manufacturer Name
18	200	CE		Y	NIP002	Substance Refusal Reason

Field Notes:

RXA-1 Required by HL7. Use "0" for VIIS.

RXA-2 Required by HL7. Use "999" for VIIS

RXA-3 Date the vaccine was given. VIIS ignores any time component.

RXA-4 Required by HL7. Ignored by VIIS, which will use the value in RXA-3.

RXA-5 This field identifies the vaccine administered. VIIS accepts the CVX code, CPT code, Vaccine Trade Name, or Vaccine Group Code for the vaccine administered. If using the CVX code, give the CVX code in the first component and "CVX" in the third component. If using the CPT code, the vaccine group code or vaccine trade name, use components four through six. For example, give the CPT code in the fourth component and "CPT" in the sixth component, |^^^90700^DtaP^CPT|. If using vaccine group code, use "WVGC" as the name of the coding system. If using vaccine trade name, use "WVTN" as the name of the coding system. See the CE data type and HL7 - Table

0292 (CVX Codes), VIIS – Table WCPT (CPT Codes), VIIS – Table WVGC (Vaccine Group Codes), and VIIS – Table WVTN (Vaccine Trade Names).

RXA-6 This field identifies the dose magnitude. Although a required field by HL7 and VIIS, VIIS ignores the incoming value and stores a value of 1.

RXA-9 VIIS will recognize 00 to indicate Administered Vaccine or 01 to indicate Historical Record. When sending, VIIS will include the corresponding immunization id in the second repeating segment.

|01^^^^^~9999999^VIIS immunization id^IMM_ID^^^|

RXA-10 Identifies the name of the person physically administering the vaccine (the vaccinator). VIIS will use components 2 – 7 to record the name and does not support repetition of this field.

RXA-11 VIIS will use this field to identify the facility where the vaccine was administered. Place the facility name in component 4.

RXA-15 Manufacturer's lot number for the vaccine. VIIS does not support repetition of this field.

RXA-17 Vaccine manufacturer from Table 0227, for example |AB^Abbott^ MVX^^^|. The HL7 2.4 specification recommends use of the external code set MVX. "When using this code system to identify vaccines, the coding system component of the CE field should be valued as "MVX" not as "HL70227." VIIS does not support repetition of this field.

RXA-18 When applicable, this field records the reason the patient refused the vaccine. See table NIP002. Any entry in this field indicates that the patient did not take the substance. The vaccine that was offered should be recorded in RXA-5, with the number 0 recorded for the dose number in RXA-2. Do not record contraindications, immunities or reactions in this field. VIIS does not support repetition of this field.

NOTE: VIIS only stores that a refusal of a vaccine occurred, not a specific type of refusal, so all outgoing refusals will default to "parental refusal" and will be returned in a separate VXU message.

RXR

The Pharmacy/Treatment Route Segment contains the alternative combination of route and site.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	60	CE	R		0162	Route
2	60	CE			0163	Site

Field Notes:

RXR-1 This is the route of administration from table 0162.

RXR-2 This is the site of the route of administration from table 0163.

OBX

The Observation/Result Segment is used to transmit an observation.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	4	SI				Set ID-OBX
2	3	ID				Value type
3	80	CE	R			Observation Identifier
5	65536	-	M	Y		Observation Value
11	1	ID	R		0085	Observation Result Status
14	26	TS				Date/Time of the observation

Field Notes:

OBX-1 Sequential numbers. Use "1" for the first OBX within the message, "2" for the second, and so forth. For Vaccine Due Next recommendation, the set ID will be the same value for each of the three OBX segments comprising the recommended vaccine.

OBX-2 Use CE for VIIS.

OBX-3 When indicating a **Vaccination Contraindication/Precaution**, use 30945-0 in this field and enter a Contraindication, Precaution, or Immunity code (NIP004) in OBX-5.

Example: OBX|1|CE|30945-0^Contraindication^LN||21^acute illness^NIP^^^|||||F|

When indicating a **Reaction to Immunization**, use 31044-1 in this field and enter a Reaction code (VIIS001) in OBX-5.

Example: OBX|1|CE|31044-1^Reaction^LN||HYPOTON^hypotonic^VIIS^^^|||||F|

When indicating a **Vaccination Adverse Event Outcome**, use 30948-4 in this field and enter an Event Consequence code (NIP005) in OBX-5.

Example: OBX|1|CE|30948-4^Adverse Outcome^LN||E^er room^NIP^^^|||||F|

OBX-5 Text reporting Contraindication, Precaution, or Immunity (NIP004), Reaction (VIIS001), or Event Consequence (NIP005). VIIS has imposed a CE data type upon this field. The first component of which is required. (e.g., |PERTCONT^Pertussis contra^VIIS^^^|)

OBX-11 Required for HL7. Use "F" for VIIS.

OBX-14 Records the time of the observation. VIIS ignores any time component.

NOTE 1: The only valid OBX Observation Identifier (OBX-03) for an **ADT^A31** message type is Contraindication/Precaution (30945-0).

NOTE 2: All OBX messages with an observation identifier of Vaccination Contraindication/Precaution will be returned in an outgoing file in a separate ADT message for the client.

Batch Files of HL7 Messages

The definitions above tell how to create messages containing client and immunization data. Each message can logically stand on its own and HL7 is compatible with various methods of online and batch transmission. VIIS uses batch files to transmit many messages together. HL7 provides special header and footer segments to structure batch files. These segments are not part of any message, but serve to bracket the messages defined above. The structure of a batch file is as follows.

```
FHS                (file header segment)
{ BHS              (batch header segment)
 { [MSH              (zero or more HL7 messages)
    ....
    ....
    ....
] }
  BTS               (batch trailer segment)
}
FTS                 (file trailer segment)
```

FHS

File Header Segment

The FHS segment is used to head a file (group of batches).

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	1	ST	R			File Field Separator
2	4	ST	R			File Encoding Characters
3	15	ST				File Sending Application
4	20	ST	M			File Sending Facility
6	20	ST	M			File Receiving Facility
7	26	TS	M			File Creation Date/Time
9	20	ST	M			File Name/ID
10	80	ST				File Header Comment
11	20	ST	M			File Control ID
12	20	ST				Reference File Control ID

Field Notes:

FHS-1 Same definition as the corresponding field in the MSH segment.
FHS-2 Same definition as the corresponding field in the MSH segment.
FHS-3 Same definition as the corresponding field in the MSH segment.
FHS-4 Same definition as the corresponding field in the MSH segment.
FHS-6 Same definition as the corresponding field in the MSH segment.
FHS-7 Same definition as the corresponding field in the MSH segment.
FHS-9 Name of the file as transmitted from the initiating system.
FHS-10 Free text, which may be included for convenience, but has no effect on processing.
FHS-11 This field is used to identify a particular file uniquely among all files sent from the sending facility identified in FHS-4.
FHS-12 Contains the value of FHS-11-file control ID when this file was originally transmitted. Not present if this file is being transmitted for the first time.

FTS

File Trailer Segment

The FTS segment defines the end of a file.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	10	NM	M			File Batch Count
2	80	ST				File Trailer Comment

Field Notes:

FTS-1 The number of batches contained in this file. VIIS normally sends one batch per file and discourages sending multiple batches per file.
FTS-2 Free text, which may be included for convenience, but has no effect on processing.

BHS

Batch Header Segment

The BHS segment defines the start of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	1	ST	R			Batch Field Separator
2	4	ST	R			Batch Encoding Characters
3	15	ST				Batch Sending Application
4	20	ST	M			Batch Sending Facility
6	20	ST	M			Batch Receiving Facility
7	26	TS	M			Batch Creation Date/Time
10	80	ST				Batch Comment
11	20	ST	M			Batch Control ID
12	20	ST				Reference Batch Control ID

Field Notes:

BHS-1 This field contains the separator between the segment ID and the first real field*, BHS-2-batch encoding characters*. As such it serves as the separator and defines the character to be used as a separator for the rest of the segment. VIIS requires | (ASCII 124).

BHS-2 This field contains the four characters in the following order: the component separator, repetition separator, escape characters and sub-component separator. VIIS requires ^~\&, (ASCII 94, 126, 92 and 38 respectively).

BHS-3 Same definition as the corresponding field in the MSH segment.

BHS-4 Same definition as the corresponding field in the MSH segment.

BHS-6 Same definition as the corresponding field in the MSH segment.

BHS-7 Same definition as the corresponding field in the MSH segment.

BHS-10 Free text, which may be included for convenience, but has no effect on processing.

BHS-11 This field is used to uniquely identify a particular batch. It can be echoed back in *BHS-12-reference batch control ID* if an answering batch is needed. For VIIS purposes, the answering batch will contain ACK messages.

BHS-12 This field contains the value of *BHS-11-batch control ID* when this batch was originally transmitted. Not present if this batch is being sent for the first time. See definition for *BHS-11-batch control ID*.

BTS

Batch Trailer Segment

The BTS segment defines the end of a batch.

SEQ	LEN	DT	R/M	RP/#	TBL#	ELEMENT NAME
1	10	ST	M			Batch Message Count
2	80	ST				Batch Comment

Field Notes:

BTS-1 This field contains the count of the individual messages contained within the batch.

BTS-2 Free text, which can be included for convenience, has no effect on processing.

File Interchange between VIIS and Outside Systems

The central repository of VIIS contains records of clients from around the state. Client and immunization records flow both ways between VIIS and outside systems. Data, for a particular client, is transmitted by VIIS to an outside system (Provider Organization) only if the client is identified as having a relationship with that Organization AND the relationship was created by transmitting the client's record to VIIS. So, an exchange of information about a given client is always initiated by the outside system. There are three options for exchanging data with VIIS:

(1) The Provider Organization can send data to VIIS and request that no data is returned from VIIS.
(2) The Provider Organization can request data from VIIS while not providing data to VIIS.
(3) The Provider Organization can send data to VIIS and VIIS will return any updated information regarding the clients that have a relationship with that Provider Organization.

Note: client and immunization data can also be entered, queried, and modified using the VIIS-Web interface. This provides an alternate way of identifying a client as having a relationship with a Provider Organization. The use of VIIS-Web is not required to create a relationship between a Provider Organization and a client. The first transmission to VIIS, for a client immunization record, will create the link that will cause VIIS to transmit that client's record to the outside system.

HL7 messages are always part of a two-way exchange between an initiating system and a responder. Sometimes the initial message implies specific data to be sent in a response. Other times, as is the case with VIIS client and immunization data, the principal response of the receiving system is to process the message and post whatever it contains to its own database. For these cases, HL7 provides the ACK message type, which contains no new application data, but allows the receiver to inform the initiator that the message has been received and processed successfully. If an error prevents successful processing, optional parts of the ACK message will allow this to be communicated as well.

For exchanges between VIIS and outside systems, it is the responsibility of the outside system to initiate the transfer of the first file, containing ADT and/or VXU messages with client and immunization data. After processing those messages, VIIS responds with a file of ACK messages. At the same time or soon after, VIIS also creates another file of ADT and VXU messages, containing the full client record, to send to the Provider Organization that initiated the first transfer. It is the responsibility of that Organization as receiver to transmit back a file of ACK messages. During this second exchange, in terms used by HL7, VIIS is the initiator and the outside system is the respondent. However, it is the receipt of the first file initiated by the outside system that causes VIIS to initiate sending its own data file.

	Provider Organization	**VIIS**	
		Outgoing	**Receiving**
1.	Creates a file of client and immunization records that have changed since they were last transmitted to VIIS.		
2.	Transmits the file to VIIS.		
3.			Processes the file received, creates a file of ACK messages.
4.		Transmits the ACK file back to the initiator of the original file.	
5.	Processes the ACK file to confirm success of the file transmission.		
6.		Creates a file of client and immunization records that have changed since they were last transmitted to this Provider Organization.	
7.		Transmits this file to the Provider Organization.	
8.	Processes the file received, creates a file of ACK messages.		
9.	Transmits the ACK file back to VIIS		
10.			Processes the ACK file to confirm success of the file transmission.

The 15th field, in the MSH message header segment, allows the initiator to ask that the message be acknowledged only in the case of an error and VIIS supports this in order to minimize the number of ACK messages transmitted. In this case, the ACK file contains only error messages (an optional form of the ACK message type). The original messages, with no answering error messages, are implicitly acknowledged as successfully processed. If all messages in a batch are successful, the answering ACK file will only contain file batch headers and footers, with no actual ACK messages. For Step, in the above table, it is

permissible for a Provider Organization to send a file containing only file batch headers and footers as a way of triggering the file that VIIS creates in Step 6. It is also possible that the file, VIIS creates in Step 6, will contain only file batch headers and footers if there are no records to send.

Examples

To illustrate how a VIIS HL7 file is put together we will document how the fictional organization, Valley Clinic, formats client and immunization records to be transmitted to VIIS. The following table displays the information to be transmitted and it is organized into HL7 segments and fields. For example, PID-3 refers to the third field in the Patient Identification segment.

Information to transmit	Data value to be entered	HL7 Format
• Client #1		PID segment
• Chart Number (ID on Valley Clinic's system)	45LR999	PID-3
• Name	GEORGE M MILLER JR	PID-5
• Mother's maiden name	MARTHA OLSON	PID-6
• Birth date	February 27, 1995	PID-7
• Sex	M	PID-8
• Address	123 MAIN ST MADISON, WI 53000, WI025	PID-11
• Social Security Number	000111222	PID-19
• Birth Place	WI025, WI	PID-23
• Multiple Birth Indicator	Y (client was born as part of a multiple birth)	PID-24
• Birth Order	2 (second birth of a multiple birth)	PID-25
• Publicity Code	02	PD1-11
• Protection Indicator	Y (client records are visible by other provider organizations)	PD1-12
• Patient Registry Status	A (client is active in the registry)	PD1-14
• Responsible Person (parent or other person who cares for client)		NK1 segment
• Name	MARTHA MILLER	NK1-2
• Relationship to client	MTH	NK1-3
• Address	123 MAIN ST MADISON, WI 53000, W1025	NK1-4
• Phone	608 123 4567	NK1-5
• Responsible Person		NK1 segment
• Name	GEORGE MILLER	NK1-2
• Relationship to client	FTH	NK1-3
• Client #2		PID segment
• Chart Number	23LK729	PID-3
• Name	MARIA CALIFANO	PID-5
• Mother's maiden name	ANGELICA DISTEFANO	PID-6
• Birth date	April 13, 1998	PID-7
• Sex	F	PID-8
• Immunization		RXA segment
• Date administered	July 23, 1999	RXA-3
• Vaccine	DtaP	RXA-5
• CPT Code	90700	RXA-5
• Dose size	0.5	RXA-6
• Administering Provider Organization	Valley Clinic	RXA-10
• Immunization		RXA segment
• Date administered	July 23,1999	RXA-3
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Administering Provider Organization	Valley Clinic	RXA-10

Information to transmit	Data value to be entered	HL7 Format
• Client #3		PID segment
• Chart Number	92HG9257	PID-3
• Name	JOSEPH FISHER	PID-5
• Mother's maiden name	MARY LASOWSKI	PID-6
• Birth date	May 28, 1998	PID-7
• Sex	M	PID-8
• Immunization		RXA segment
• Date administered	July 29, 1999	RXA-3
• Vaccine	MMR	RXA-5
• CPT Code	90707	RXA-5
• Dose	0.5	RXA-6
• Administering Provider Organization	Valley Clinic	RXA-10
• Lot number	AD19487	RXA-15
• Lot expiration date	December 12, 1999	RXA-16
• Lot manufacturer	FLYBYNIGHT LABORATORIES (this manufacturer is not found in the valid list in HL7 Table 0227, and the invalid value will cause VIIS to reject the message with an error message)	RXA-17

In an HL7 message, each segment is a single text line, ending with the carriage return character. In the examples, long lines are broken artificially for display purposes and the carriage return character is denoted by <CR>.

```
FHS|^~\&|VALSYS|VALCLIN||VIIS|19990802091523||filename1.hl7|WEEKLY HL7
      UPLOAD|00009972<CR>
BHS|^~\&|VALSYS|VALCLIN||VIIS|19990802091523||||00010223<CR>
MSH|^~\&|VALSYS|VALCLIN||VIIS|19990802091524||ADT^A31|00000123|P|2.4|||AL<CR>
PID|||45LR999^^^^PI||MILLER^GEORGE^M^JR|OLSON^MARTHA|19950227|M|||123 MAIN
      ST^^MADISON^WI^53000^US^^^DANE|||||||000111222||||US^WI^W1025|Y|2<CR>
PD1 ||||||||||02^REMINDER/RECALL - ANY MENTOD^HL70215|Y| |A<CR>
NK1|1|MILLER^MARTHA|MTH^Mother^HL70063|123 MAIN ST^^MADISION^WI^53000^US^^^W1025
      |(608)123-4567<CR>
NK1|2|MILLER^GEORGE|FTH^Father^HL70063<CR>
MSH|^~\&|VALSYS|VALCLIN||VIIS|19990802091524||VXU^04|00000124|P|2.4|||ER<CR>
PID|||66782^^^SR^~23LK729^^^^PI|CALIFANO^MARIA|DISTEFANO^ANGELICA|19980413|F<CR>
RXA|0|999|19990723|19990723|^^^90700^DTaP^CPT|1.0||||VALCLIN<CR>
RXA|0|999|19990723|19990723|^^^90707^MMR^CPT|||||VALCLIN<CR>
MSH|^~\&|VALSYS|VALCLIN||VIIS|19990802091526||VXU^04|00000125|P|2.4|||ER<CR>
PID|||927389^^^^SR^~92HG9257^^^^PI|FISHER^JOSEPH|LASOWSKI^MARY|19980528|M<CR>
RXA|0|999|19990729|19990729|^^^90707^MMR^CPT|1.0||||VALCLIN|||||AD19487|
      19991212|ZZ^FLYBYNIGHT LABORATORIES^HL70227|||||A<CR>
BTS|3<CR>
FTS|1<CR>
```

Note: When a client is being introduced to VIIS, the VXU message must precede the ADT message, since VIIS must have at least one immunization for a client before being added to the database. Sending ADT and VXU messages for the same client is redundant, since the VXU message is capable of reporting all information that is also found in the ADT.
In the example above, Valley Clinic sends a file of three HL7 messages to VIIS. Batch header/footer segments bracket the messages. The first message type is an ADT, which is used to send client demographic data without including immunization information. This message type MUST follow a VXU message for the client if the client is new to the VIIS system.

Client George M Miller Jr. is identified by Valley Clinic's chart number, 45LR999, in his PID segment. The message could have included George's VIIS ID number in field PID-3, but does not have to, if it is not recorded in Valley Clinic's system. George's mother's maiden name, birth date, sex, address, and social security number also serve to identify him. Some other optional fields are not present, including some fields from the full HL7 standard not defined in this document because they are not used by VIIS. Fields not present do not diminish the number of "|" delimiters, so later fields can be identified by ordinal

position in the segment. Two NK1 segments give some information for George's mother and father, just the minimum required for his father, with address and telephone fields for his mother.
The next two PID segments in the second and third messages give a VIIS client ID in field PID-3. This must have been transmitted earlier from VIIS to Valley Clinic's system. In this case it is legitimate to omit more of the optional PID fields, since VIIS must have at least the minimum required information for these clients even to create a record. However, if there is a possibility that Valley Clinic has new or changed information to send to VIIS, these fields should be present, and it does no harm to repeat fields even if they have been transmitted previously.

```
FHS|^~\&|VIIS|VIIS||VALCLIN|19990803200106||filename2.hl7||000023479|00009972<CR>
BHS|^~\&|VIIS|VIIS||VALCLIN|19990803200116||||00004321|00010223<CR>
MSH|^~\&|VIIS|VIIS||VALCLIN|19990803200117||ACK|00000456|P|2.4<CR>
MSA|AA|00000123<CR>
MSH|^~\&|VIIS|VIIS||VALCLIN|19990803200119||ACK|00000458|P|2.4<CR>
MSA|AE|00000125|INVALID MANUFACTURER CODE<CR>
ERR|RXA^152^17^1<CR>
BTS|2|<CR>
FTS|1<CR>
```

VIIS answers the file from the above example with a file of ACK messages. Valley Clinic's message 00000123 had the value AL in field MSH-15, asking for acknowledgements of all messages. The value AA in MSA-1 indicates that this message was processed without error. The next message, 00000124, uses the value ER to ask for acknowledgement only in case of errors, so this message is acknowledged implicitly by the absence of an ACK message for it. This example while legitimate is for purposes of illustration and most providers will probably prefer to follow the VIIS recommendation of error acknowledgements only. The last message, 00000125, did contain an error, and the ERR segment in its acknowledgement indicates the segment ID (RXA) of the segment, the line number (152) where it appears in the input file, the errant field (17)and the field component (1). . The MSA segment contains the error message. Errors will be generated for missing required data, invalid data or any other deviance from the form and content of messages as specified in this document. If all three messages in the first file above had requested error acknowledgement only and none had any errors, then the answering file from VIIS would contain just the FSH, BHS, BTS, and FTS segments. All the messages would be implicitly acknowledged as successfully processed.

In the sample file exchange above, the outside system initiated the exchange with the file of ADT and VXU segments and VIIS responded with ACK segments. The format is identical when VIIS sends ADT and VXU segments out and the ACK responses are similar too. In the FHS, BHS, and MSH segments, the values of the fourth and sixth fields are reversed to show sender and receiver. VIIS always sends its own client identifier in the required field PID-03 and includes the outside system's identifier in PID-03 if known. Outside systems are encouraged to store VIIS's client ID, and use it in PID-03 when sending to VIIS. This provides a firm basis for client identification makes processing easier for the VIIS system and avoids errors in storing client information, such as creation of duplicate records when an insufficiently identified client record cannot be matched with a record already in the VIIS database. Though VIIS makes a great effort to match client records effectively, use of the VIIS client ID is the best guarantee of clean and useful data.

Real-time Processing

"Real-time" processing refers to the ability to transmit an HL7 2.4 formatted VXQ^V01 Message (Query for Vaccination Record) and a VXU^V04 Message (Unsolicited Vaccination Update) and receive from VIIS the resulting HL7 2.4 Response Message in real time. A provider organization will query a registry to get information on a certain client (i.e. send an HL7 2.4 VXQ^V01 message) and will receive an HL7 2.4 Message Response (i.e. VXR^V03, VXX^V02, ACK or QAK) to that query in real time

In order to have this capability, provider organizations need to perform the following:

1. Obtain or develop, install and configure a client interface capable of transmitting an HL7 formatted Message file via the Electronic Business using eXtensible Markup Language (ebXML) infrastructure to securely transmit public health information over the Internet to the Public Health Information Network Messaging System (PHINMS) Message Receiver.

   The CDC provides, free of charge, their PHINMS client Message Sender for communication with their PHINMS Message Receiver. Alternatively, the provider may choose to develop their own ebXML Message Sender to communicate with the PHINMS Message Receiver.
2. The provider organization will submit a text file containing HL7 2.4 formatted VXQ^V01 and VXU^V04 Messages (up to 1000 messages are accepted) to be delivered via their ebXML-based client Message Sender to the VIIS PHINMS Message Receiver. VIIS will process the Messages and send back via the PHINMS Message Receiver a file of HL7 2.4 formatted Response Messages, one per associated query or vaccination update request.
3. It is the responsibility of the provider organization to obtain or develop, install and configure an ebXML client Message Sender for sending the HL7 2.4 formatted Message Requests and receiving the resulting HL7 2.4 formatted Message Response file generated by VIIS
4. The provider organization will need to obtain from VIIS a CPA (Collaboration Protocol Agreement) for access to the VIIS Real-time system.
5. The provider organization will need to obtain the VIIS SSL certificate for secure access. See Appendix C (Obtaining the VIIS SSL Certificate) for detailed instructions. Please note: your certificate must be renewed annually. You will need to repeat the procedure detailed in Appendix C on an annual basis.

****VIIS PROVIDES NEITHER INSTALLATION, CONFIGURATION NOR TECHNICAL SUPPORT FOR THE EBXML CLIENT MESSAGE SENDER.**

Full documentation and contact information for the PHINMS product may be found at the following link:
http://www.cdc.gov/phin/

Full documentation for the ebXML specification may be found at the following link:
http://www.ebxml.org/specs
PHINMS is ebXML version 2.0 compliant.

The following section outlines the various message types that are sent in real-time files.

Real-time files that provider organizations send to the VIIS can contain any of the following message types:

VXU^V04
Unsolicited Vaccination Update

MSH	Message Header
PID	Patient Identification
[PD1]	Patient Additional Demographic
[{NK1}]	Next of Kin / Associated Parties
[PV1]	Patient Visit
RXA	Pharmacy / Treatment Administration (at least ONE RXA is REQUIRED by VIIS)
[RXR]	Pharmacy / Treatment Route (Only one RXR per RXA segment)
[{OBX}]	Observation/Result

VXQ^V01
Query for Vaccination Record

MSH	Message Header Segment
QRD	Query Definition Segment
QRF	Query Filter Segment (VIIS has made this segment REQUIRED)

Real-time (response) files that the VIIS sends to provider organizations can contain any of the following message types:

VXR^V03

Response TO Vaccination Query Returning the Vaccination Record

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
QRD	Query Definition Segment (One per message)
QRF	Query Filter Segment (One per message—required by VIIS)
PID	Patient Identification Segment (One per matching client)
[PD1]	Additional Demographics
[{NK1}]	Next of Kin Segment (Optional, zero or more per matching client)
[PV1]	
[{	
RXA	Pharmacy Administration
[RXR]	Pharmacy Route
[{OBX}]	Observation/Result Contraindications or Reactions
}]	
[{OBX}]	Observation/Result Vaccines Due Next

VXX^V03

Response TO Vaccination Query (Returning Multiple PID Matches)

MSH	Message Header Segment (One per message)
MSA	Message Acknowledgment Segment (One per message)
QRD	Query Definition Segment (One per message)
QRF	Query Filter Segment (One per message—required by VIIS)
{	
PID	Patient Identification Segment (One per matching client)
[{NK1}]	Next of Kin Segment (Optional, zero or more per matching client)
}	

ACK

General Acknowledgment

MSH	Message Header Segment
MSA	Message Acknowledgment Segment
[ERR]	Error

QCK

Query General Acknowledgment

MSH	Message Header Segment
MSA	Message Acknowledgment Segment
[ERR]	Error
[QAK]	Query Acknowledgment Segment

Page 6 of this document outlines the rules/specifications needed to construct a HL7 message. These same rules must be applied for Real-time message processing. **Note: Batch Message Headers (i.e. FHS, BHS) and footers (i.e. FTS, BTS) are NOT required for Real-time processing.

The message segments below are needed to construct message types that are used by VIIS. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since VIIS does not use all the fields that HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, their field separators remain in order to indicate that the next field present is the fourth: field1|||field4.

MSH

Message Header Segment

For VXU and VXQ message types, the MSH segment must be constructed according to normal HL7 format specifications (refer to Pg. 5 of this document). For Real-time processing, VIIS limits the number of MSH segments that can be processed in a single file. Files containing more than 1000 MSH segments will be rejected and an ACK message will be generated, informing the provider that 1000 is the maximum number of MSH segments that VIIS accepts for Real -time processing.

VXU^V04

Unsolicited Vaccination Record Update

As stated earlier in this document, the VXU message is used for sending client demographic and immunization specific data. This message type can be sent via Real-time. VXU segments should be constructed according to normal HL7 format specifications (refer to pages 5-9 of this document). A VXU message must be received in the HL7 2.4 format; VIIS does not support prior HL7 versions for Real-time processing. VIIS validates the version by reading the MSH-12 field. A VXU message must contain |2.4^^| in MSH-12.

Immunization deletions can be submitted for both batch HL7 2.4 and Real-time submissions. To indicate a deletion, the RXA-21 field must be populated with a value of "D". Below is an example of a RXA deletion segment. If the number of deletions received through batch exceeds 5% of the total number of immunizations or more than 50 immunizations are marked for deletion, VIIS will reject the file.

RXA|0|999|19860715|19860715|^^^90718^Td^CPT|0|||05^^^^^||^^^208^^^^^^^^^^^|||||||D|

VXQ^V01

Query for Vaccination Record

When a health care provider (participating in an immunization registry) needs to obtain a complete patient vaccination record, a VXQ (query) is sent to the immunization registry for the definitive (last updated) immunization record. The three segments that make up a VXQ message are the MSH (message header), QRD (query definition) and QRF (query filter). For a VXQ message, the MSH-09 field must contain |VXQ^V01| and the segments must be in the following sequence order:

MSH|^~\&|VIISPH|VIISPH|VIISPH|VIISPH|200212091511||VXQ^V01|0000001|P^|2.4||||ER
QRD|19970522|R|I|000000001|||25^RD|01^KENNEDY^JOHN^FITZGERALD^JR|VXI|^VACCINE INFORMATION^HL700048|^S11S|
QRF|MA0000||||256946789~19900607~MA~MA99999999~88888888~KENNEDY^JACQUELINE^LEE~BOUVIER~898666725~KENNEDY^JOHN^FITZGERALD~822546618|

The QRD and QRF segments are outlined in detail below.

QRD

Query Definition Segment

Used to define a query.

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	26	TS	R			Query date/time
2	1	ID	R		0106	Query Format Code
3	1	ID	R		0091	Query Priority
4	10	ST	R			Query ID
5	1	ID	O		0107	Deferred response type
6	26	TS	O			Deferred response date/time
7	10	CQ	R		0126	Quantity limited request
8	60	XCN	R	Y		Who subject filter
9	60	CE	R	Y	0048	What subject filter
10	60	CE	R	Y		What department data code
11	20	CM	O	Y		What data code value qualifier
12	1	ID	O		0108	Query results level

Field Notes:

QRD-01 Date the query was generated by the application program. VIIS requires this field and verifies that a valid date is received. The minimum format of YYYYMMDD is required. A null/invalid value results in message rejection.

QRD-02 Query/response format code. VIIS requires this field and only accepts a value of "R". A null/invalid value results in message rejection.

QRD-03 Time frame in which the response is expected. VIIS requires this field and only accepts a value of "I". A null/invalid value results in message rejection.

QRD-04 Unique identifier for the query assigned by the querying application. VIIS requires this field and null/invalid values result in message rejection. This field is returned intact by VIIS in a response (VXR or VXX).

QRD-05 Used to indicate a deferred response. This is an optional field. VIIS does not support a deferred response.

QRD-06 Used to indicate the date/time of the deferred response. This is an optional field. VIIS does not support a deferred response.

QRD-07 Maximum length of the response that can be accepted by the requesting system. VIIS requires this field and only accepts a value of "RD" in the 2nd component. The 1st component is a numerical value. A null/invalid value in either sub-component results in message rejection. VIIS will interpret the units as the maximum number of client MATCHES to be returned via a VXX response message.

*Note: VIIS will return a maximum of 10 records per query message submitted. If a value of 0 (zero) is received (i.e. |0^RD|) then VIIS will return the maximum allowable number of clients found to be matching the VIIS.

QRD-08 Identifies the subject of the query or whom the inquiry is about. The 2nd component is required by VIIS If the first or last name OR both names are missing (regardless if there are repeating full names after the first) it results in message rejection. VIIS supports repetition of this field.

QRD-09 Describes the kind of information required to satisfy the request. VIIS requires this field and a value of "VXI" must populate the 1st component. VIIS supports repetition of this field. Null/invalid values result in message rejection if the field does not repeat. If the field repeats there must be at least one value of "VXI" to be valid.

QRD-10 Identifies the "what" department data code. VIIS requires this field and supports repetition of it. Null/invalid values will result in message rejection.

QRD-11 Further refines the inquiry by data code qualifiers by providing a window or range. This is an optional and repeatable field.

QRD-12 Used to control level of detail in results. This field is optional and will be populated by VIIS with the total count of PID matches found in VIIS when Query results in a VXX Response Message.

Example:
QRD|19970522|R|I|000000001|||25^RD|01^KENNEDY^JOHN^FITZGERALD^JR|VXI|^VACCINE INFORMATION^HL700048|^S11S|20

QRF – Query Filter Segment – REQUIRED by VIIS

Used with the QRD segment to further refine the content of a query.

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	20	ST	R	Y		Where subject filter
2	26	TS	O			When data start date/time
3	26	TS	O			When data end date/time
4	60	ST	O	Y		What user qualifier
5	60	ST	O	Y		Other query subject filter
6	12	ID	O	Y	0156	Which data/time qualifier
7	12	ID	O	Y	0157	Which date/time status qualifier
8	12	ID	O	Y	0158	Date/time selection qualifier
9	60	TQ	O	Y		When quantity/timing qualifier

Field Notes:

QRF-01 Identifies the department, system or subsystem to which the query pertains. VIIS requires this field. A null/invalid value results in message rejection.

QRF-02 Data representing dates and times (registries do not value this component). This is an optional field.

QRF-03 Data representing dates and times (registries do not value this component). This is an optional field.

QRF-04 An identifier to further define characteristics of the data of interest. This is an optional field.

QRF-05 This field is used by registries to transmit up to ten separate search "keys". VIIS requires this field and does NOT support repetition. The 2nd component (patient DOB) is minimally required by VIIS. A null/invalid format results in message rejection. Format is YYYYMMDD.

Example:
QRF|MA0000||||256946789~19900607~MA~MA99999999~88888888~KENNEDY^JACQUELINE^LEE~BOUVIER~898666725~KENNEDY^JOHN^FITZGERALD~822546618|

VXR^V03 – Response TO Vaccination Query (Returning the Vaccination Record)

When a patient has been uniquely identified (there is only one "match" to the query), the response to the query is a VXR^V03 message that is generated and sent back to the querying organization. VIIS has imposed rules for when a VXR will be sent to the querying organization. Please see the following rules:

1. If an exact match is found in VIIS AND the client's "Allow Sharing of Immunization Data" indicator is set to "NO", then that client will **NOT** be returned to the requestor unless one of the statements below pertains:
   - The organization requesting the query is the Master organization of a Parent organization owning the data **OR**
   - The organization requesting the query had originally set the "Allow Sharing of Immunization Data" indicator to NO.
2. If an exact match is found in VIIS AND the client's "Allow Sharing of Immunization Data" indicator is set to "NO" (and none of the above rules apply), then a QCK response is sent instead of the VXR message.
3. VIIS will only return eligible vaccines. VIIS will not supply vaccines that are ineligible due to age restrictions, contraindications or other such rules. VIIS will supply vaccines according to CDC/ACIP schedule.

VXR segment detail

Several segments make up the VXR message type. The following segments have been outlined previously in this document and will follow the same formatting for the VXR message type.

MSH, MSA, QRD, QRF, PID, PD1, NK1, PV1, RXA, RXR, OBX (Observation/Result Contraindications or Reactions)

In addition to supplying the querying organization with client specific demographic and immunization data (contained in the above segments), the VXR message also specifies "Observation/Result Vaccines Due Next" information. This information is supplied by generating a minimum of 3 OBX segments per 1 recommendation. VIIS will report the Vaccination Schedule in the OBX segments through the specification of the LOINC code 30979-9 (Vaccines Due Next) and its sub-components in OBX-03. VIIS requires specification of OBX-05 when OBX-03 is specified and valid. Further, VIIS has superimposed a CE data type on the OBX-05 field. The corresponding observation values will be specified in OBX-05. Combinations are as follows:

OBX-03	**OBX-05**
30979-9	HL70292 (Codes for vaccines administered CVX)
30979-9&30980-7	Date Vaccine Due (VIIS provides date recommended)
30979-9&30981-5	Earliest date to give (VIIS provides)

Below you'll find an example of what a recommendation might look like in a VXR message response (see **bolded** OBX's below).

MSH|^~\&||VIIS||QUERYING ORG|20040101101||VXR^V04|001|P^|2.4|||ER
MSA|AA|001|
QRD|20040120|R|I|001|||1^RD|01^LAST NAME^FIRST^MIDDLE^JR|VXI|^VACCINE INFORMATION^HL700048|^S11S||1|
QRF|MA000||||~19900607~WI~STATEBIR#~MA#~KENNEDY^JACQUELINE^LEE~BOUVIER~898666725~KENNEDY^JOHN^FITZ GERALD~822546618~587421369~19630119~MN~MN99999999~88888888~DOE^JANE^ROSE~SMITH~999999999~SMITH^JOHN^I~ 999999999|
PID||1912484^^^^^|123^^^^PI^||Trolly 1A^Eliot^J^Sr^^|^^^^^|19090509|M||^^^^^|12017 N ROCK INN RD^^AUBURNDALE^WI^54412^USA^^^^||(715)384-8649^^^^^^^^|||||||||^^^^^|^^||||||
PD1||||||||||01^^^^^|Y||||A|||
NK1|1|Hamus^Eugene^J^Sr^^|SEL^SELF^HL70063|12017 N ROCK INN RD^^AUBURNDALE^WI^54412^USA^^^^|(715)384-8649^^^^^^^^|
PV1||I|||||||||||||||||V00^20031208|
RXA|0|999|20021001|20021001|^^^90721^Diphtheria, Tetanus, Acellular Pertussis + HIB^CPT|0|||^Health Assessment & Promotion (HAP)^Y|||||||^^HL70227||||||200210141430
RXR|IM^^^^^|LA^^^^^
OBX|1|CE|30979-9^Vaccine due next^LN|1|20^DTAP^CVX^^^|
OBX|2|TS|30979-9&30980-7^Date vaccine due^LN|1|20040130^^^^^|
OBX|3|NM|30979-9&30981-5^Earliest date to give^LN|1|20040111^^^^^|

VXX^V03

Response TO Vaccination Query (Returning Multiple PID Matches)

When a health care provider participating in an immunization registry needs to obtain a complete patient vaccination record, a query (VXQ message) is sent to the immunization registry for the definitive (last updated) immunization record. When a query results in multiple patient matches, the VXX message response is generated. The VXX contains multiple clients and their demographic information but does not contain their vaccination information. The number of matches that VIIS generates will

depend on what is specified in the first component of the incoming VXQ (QRD-07 Quantity Limited request field). VIIS will interpret the quantity specified in this field as the maximum number of client matches that the requester desires.

For example:
If the query results in 100 matches and the original quantity specified in QRD-07 was 10, then VIIS generates 10 PID (and if applicable, associated NK1) segments in the VXX response message.

VIIS has imposed rules for when a VXX will be sent to the querying organization. Please see the following rules:

1. If the "Allow Sharing of Immunization Data" indicator is set to No (in VIIS) for a client found matching the query, then that client will **NOT** be returned to the requestor unless one of the statements below pertains:
   - The requestor is the Master organization of the Parent organization owning the data OR
   - The organization requesting the query had originally set the "Allow Sharing of Immunization Data" to No.

The following scenarios outline when a VXX message will be sent back when multiple matches are found, but some of the matches have an "Allow Sharing of Immunization Data" indicator of "No".

Scenario 1:
The following paragraph holds true, assuming that the VXQ has 0 in QRD-07 (meaning that the provider org. wants the maximum number of clients sent back).

If VIIS matches 10 clients and only 2 of those clients have the "Allow Sharing of Immunization Data" indicator set to "Yes", then those 2 clients will be sent back in the VXX message and the remaining 8 clients (having indicators of "No") will not be sent back. The QRD-12 field (in the VXX) will reflect the total number of matches found in VIIS (10 in our example) and the querying organization will need to assume that the 8 clients that were not returned had the "Allow Sharing of Immunization Data" indicator set to "No".

Example:

VXQ

MSH|^~\&||ZZ000||QUERYING ORG|20040101101||VXQ^V01|001|P^|2.4|||ER
QRD|20040120|R|I|01|||**0**^RD|01^SALAMI^STUART^S^^|VXI|^VACCINE INFORMATION^HL700048|^S11S||0|
QRF|ZZ000||||~19900607~|

VXX

MSH|^~\&||ZZ000||QUERYING ORG|20040101101||VXX^V02|001|P^|2.4|||ER
MSA|AA|001||0||0^Message Accepted^HL70357^^^
QRD|20040120|R|I|01|||0^RD|01^SALAMI^STUART^S^^|VXI|^VACCINE INFORMATION^HL700048|^S11S||10|
QRF|ZZ000||||~19900607~|
PID||123^^^^SR~^^^^PI^||SALAMI^BRAD^S^^|^^^^^|19900607|M||^^^^^|||
PID||456^^^^SR~^^^^PI^||SALAMI^CHARLES^^^^|^^^^^|19900706|M||^^^^^|||
NK1|1|SALAMI^CHARLES^^|SEL^SELF^HL70063|123 STREET ADDRESS^^CITY^WI^55555^USA^^^^|(608)555-6666^^^^^^^^|

Scenario 2:
If VIIS matches 2 clients and both have the "Allow Sharing of Immunization Data" indicator set to "No", then a QCK is generated. The QCK message will be comprised of the MSH, MSA and QAK segments. The MSA-01 field will have a value of "AR" (Application Reject). The MSA-03 field will display a message similar to "Client has an Allow Sharing of Immunization Data indicator = No". MSA-06 text will display, "Record not released".

Example:

VXQ

MSH|^~\&||ZZ000||QUERYING ORG|20040101101||VXQ^V01|007|P^|2.4|||ER
QRD|20040120|R|I|01|||0^RD|01^TEST INDICATOR^NO^|VXI|^VACCINE INFORMATION^HL7000048|^S11S|||

QCK

MSH|^~\&||ZZ000||QUERYING ORG|20040101101||VXX^V02|007|P^|2.4|||ER
MSA|AR|007|Client has an Allow sharing of immunization data indicator = No||500^Record Not Released^HL70357^^^|
QAK|01|NF|

ACK

Acknowledgment Messages (with Errors)

ACK messages are generated for message rejections and for informational error messages. Three conditions that result in message rejection are:

1. Sequencing (i.e. a PID segment must follow an MSH segment.

2. Segment required fields contain no data.
3. Segment required fields contain invalid data.

An ACK is also generated when an informational error message has occurred, but it has not resulted in message rejection (i.e. NK1 segment contains no last name). In this case, the segment is ignored but the remainder of the message is processed. An ACK message is generated with a message informing the sender of the problem. The error message in the text does NOT include "Message Rejected". The ACK contains the MSH, MSA and ERR segments.
The MSH segment is generated according to normal HL7 processing guidelines. The MSA and ERR segments are detailed below:

MSA

Message Acknowledgment Segment

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0008	Acknowledgment code
2	20	ST	R			Message control ID
3	80	ST	O			Text message
4	15	NM	O			Expected sequence number
5	1	ID	B		0102	Delayed acknowledgment type
9	100	CE	O			Error condition

Field Notes:

MSA-01 The acknowledgment code indicates whether the message was accepted, rejected, error, etc…This is a required field. VIIS generates an "AE" for messages resulting in informational or rejection errors. An "AA" is generated for a simple acknowledgment acceptance.

MSA-02 The message control ID is the unique ID that is sent by the sending system. This is a required field. It allows the sending system to associate each message with a response. In a response, this will be the same as the control ID that was sent in MSH-10 by the sending system.

MSA-03 This optional field further describes an error condition. When a message has been rejected, VIIS generates "Message Rejection" as the first portion of the text describing the error message. Informational messages will not contain "Message Rejection".

MSA-04 This optional numeric field is used in the sequence number protocol. VIIS does not generate this field.

MSA-05 Delayed Acknowledgement type. VIIS does not generate this field.

MSA-06 Error Condition. VIIS does not generate this field.

ERR

Error Segment

The Error segment (ERR) is used to add error comments to acknowledgment messages. If the message was rejected for functional reasons, this segment will locate the error and describe it using locally established codes. Field components include:
<segment ID (ST)>^<sequence (NM)>^<field position (NM)>^<code identifying error (CE)>

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	80	CM	R		0357	Error code and location

Example:

ACK

MSH|^~\&||ZZ000||QUERYING ORG|20040101101||VXQ^V01|001|P^|2.4|||ER
MSA|AE|001|Invalid relationship code. Defaulting to Guardian|3||102^Invalid data value^HL70357^^^
ERR|NK1^16^3^0

QCK

Query General Acknowledgment

A QCK message is generated when VIIS has processed the query message, but no match was found to the query parameters in the database. VIIS does NOT generate this response message for anything other than no match found (for successful VXQ processing). Remember, error messages are reported through the use of the ACK response message; therefore, the optional [ERR] segment will never be generated for the QCK response message.

The MSH segment is generated according to normal HL7 processing guidelines. The MSA and QAK segments are detailed below:

MSA

Message Acknowledgment Segment

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0008	Acknowledgment code
2	20	ST	R			Message control ID
3	80	ST	O			Text message
4	15	NM	O			Expected sequence number
5	1	ID	B		0102	Delayed acknowledgment type
9	100	CE	O			Error condition

Field Notes:

MSA-01 The acknowledgment code indicates whether the message was accepted, rejected, error, etc…This is a required field. VIIS generates an AA for this field if no match is found in VIIS. An AR is generated if a match is found, but the "Allow sharing of data" indicator is No.

MSA-02 The message control ID is the unique ID that is sent by the sending system. This is a required field. It allows the sending system to associate each message with a response. In a response, this will be the same as the control ID that was sent in MSH-10 by the sending system.

MSA-03 This optional field further describes an error condition. When a message has been rejected, VIIS generates "Message Rejection" as the first portion of the text describing the error message. Informational messages will not contain "Message Rejection".

MSA-04 This optional numeric field is used in the sequence number protocol. VIIS does not generate this field.

MSA-05 Delayed Acknowledgement type. VIIS does not generate this field.

MSA-06 Error Condition. Refer to HL7 table 0357 for possible values.

QAK

Query Acknowledgment Segment

SEQ	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
1	32	ST			00696	Query Tag
2	2	ID	O		00708	Query response status

Field Notes:

QAK-01 This field is valued by the initiating system to identify the query and can be used to match response messages to the originating query. If it is valued, the responding system is required to echo it back as the first field in the QAK. VIIS uses the value specified in the QRD-04 (of the VXQ) for the QAK-01 query tag value.

QAK-02 This field allows the responding system to return a precise response status. Refer to HL7 table 0208 for values. VIIS only generates NF (no data found, no errors) for this field.

Example:

QCK

MSH|^~\&||ZZ000||QUERYING ORG|20040101101||VXX^V02|007|P^|2.4|||ER
MSA|AR|007|Client has an Allow sharing of immunization data indicator = No||500^Record Not Released^HL70357^^^|
QAK|01|NF|

This concludes real-time processing.

Appendix A -- HL7 Data Types

The following descriptions of HL7 data types are excerpted or adapted from the HL7 standard. See the field notes within each segment definition above on how to use data types in particular fields. Some data types have complex definitions much of which do not apply to VIIS usage, and for these we omit much of the HL7 definition of the data type, referring instead to the field notes in the segment definitions.

CE

Coded Element

```
Components:  <identifier (ST)> ^ <text (ST)> ^ <name of coding system (ST)> ^ <alternate identifier (ST)> ^ <alternate
             text (ST)> ^ <name of alternate coding system (ST)>
```

Example:

```
|F-11380^CREATININE^I9^2148-5^CREATININE^LN|
```

This data type transmits codes and the text associated with the code. To allow all six components of a CE data type to be valued, the maximum length of this data type must be at least 60.

Identifier (ST)

Sequence of characters (the code) that uniquely identifies the item being referenced by the <text>. Different coding schemes will have different elements here.

Text (ST)

Name or description of the item in question. E.g., myocardial infarction or X-ray impression. Its data type is string (ST).

Name of coding system (ST)

Each coding system is assigned a unique identifier. This component will serve to identify the coding scheme being used in the identifier component. The combination of the **identifier** and **name of coding system** components will be a unique code for a data item. Each system has a unique identifier. ASTM E1238-94, Diagnostic, procedure, observation, drug ID, and health outcomes coding systems are identified in the tables in Section 7.1.4 [of the full HL7 standard], "Coding schemes." Others may be added as needed. When an HL7 table is used for a CE data type, the ***name of coding system*** component is defined as ***HL7nnnn*** where ***nnnn*** is the HL7 table number.

Alternate components

These three components are defined analogously to the above for the alternate or local coding system. If the Alternate Text component is absent, and the Alternate Identifier is present, the Alternate Text will be taken to be the same as the Text component. If the Alternate Coding System component is absent, it will be taken to mean the locally defined system.

Note:	The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.

Note:	For HL7-defined tables which have not been adopted from some existing standard, the third component, "name of coding system," is constructed by appending the table number to the string "HL7." Thus, the field *RXR-2-site*, is a CE data type which refers to HL7 table number 0163. Its "name of coding system" component is "HL70163".

CM

Composite

```
Components:  <point of care (IS)> ^ <room (IS) ^ <bed (IS)> ^ <facility (HD) ^ <location status (IS) ^ <patient
             location type (IS)> ^ <building (IS)> ^ <floor (IS)> ^ < street address (ST)> ^ <other designation (ST)>
             ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code (ST)> ^ <country (ID)> ^ <address type
             (ID)> ^ <other geographic designation (ST)>

Subcomponents of facility (HD):  <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>
```

Example:

```
|^^^Valley Clinic|
```

Definition: The first component contains the inpatient or outpatient location at which the drug or treatment was administered (if applicable). The default (null) value is the current census location for the patient. Site-specific table. The first eight components have the same form as the first eight comonents of *PV1-3-assigned patient location.* The final eight components replace the ninth component of *PV1-3-assigned patient location* and represent the full address specification.

CX

Extended Composite ID with Check Digit

VIIS uses this data type only for client identification in Patient Identification (PID) segments. See the field notes for values used for VIIS.

HD
Hierarchic Designator
VIIS uses this data type only to identify sender and receiver in Message Header (MSH) segments. See the field notes for values used for VIIS.

ID
Coded Value for HL7 Defined Tables

The value of such a field follows the formatting rules for a ST field except that it is drawn from a table of legal values. There shall be an HL7 table number associated with ID data types. Examples of ID fields include religion and sex. This data type should be used only for HL7 tables. The reverse is not true, since in some circumstances it is more appropriate to use the CE data type for HL7 tables.

IS
Coded Value for User Defined Tables

The value of such a field follows the formatting rules for a ST field except that it is drawn from a site-defined (or user-defined) table of legal values. There shall be an HL7 table number associated with IS data types. An example of an IS field is the *Event reason code* defined in Section 3.3.1.4 [of the full HL7 standard], "Event reason code." This data type should be used only for user-defined tables. The reverse is not true, since in some circumstances, it is more appropriate to use the CE data type for user-defined tables.

NM
Numeric

A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer. Examples:

```
|999|
|-123.792|
```

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, "01.20" and "1.2", are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

SI
Sequence ID

A non-negative integer in the form of a NM field. See the field notes in segments using this data type for specifications of SI fields.

ST
String Data

String data is left justified with trailing blanks optional. Any displayable (printable) ACSII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined delimiter characters. Example:

```
|almost any data at all|
```

To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence.

Usage note: the ST data type is intended for short strings (e.g., less than 200 characters). For longer strings the TX or FT data types should be used.

TS
Time Stamp

```
Format:  YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]^<degree of precision>
```

Contains the exact time of an event, including the date and time. The date portion of a time stamp follows the rules of a date field and the time portion follows the rules of a time field. The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

In prior versions of HL7, an optional second component indicates the degree of precision of the time stamp (Y = year, L = month, D = day, H = hour, M = minute, S = second). This optional second component is retained only for purposes of backward compatibility.

By site-specific agreement, YYYYMMDD[HHMM[SS[.S[S[S[S]]]]]][+/-ZZZZ]^<degree of precision> may be used where backward compatibility must be maintained.

In the current and future versions of HL7, the precision is indicated by limiting the number of digits used, unless the optional second component is present. Thus, YYYY is used to specify a precision of "year," YYYYMM specifies a precision of "month," YYYYMMDD specifies a precision of "day," YYYYMMDDHH is used to specify a precision of "hour," YYYYMMDDHHMM is used to specify a precision of "minute," YYYYMMDDHHMMSS is used to specify a precision of seconds, and YYYYMMDDHHMMSS.SSSS is used to specify a precision of ten thousandths of a second. In each of these cases, the time zone is an optional component. Maximum length of the time stamp is 26. Examples:

```
|19760704010159-0600|   1:01:59 on July 4, 1976 in the Eastern
                       Standard Time zone.

|19760704010159-0500|   1:01:59 on July 4, 1976 in the Eastern
                       Daylight Saving Time zone.

|198807050000|          Midnight of the night extending from July 4 to
                       July 5, 1988 in the local time zone of the sender.

|19880705|              Same as prior example, but precision extends
                       only to the day.  Could be used for a
                       birthdate, if the time of birth is unknown.
```

The HL7 Standard strongly recommends that all systems routinely send the time zone offset but does not require it. All HL7 systems are required to accept the time zone offset, but its implementation is application specific. For many applications the time of interest is the local time of the sender. For example, an application in the Eastern Standard Time zone receiving notification of an admission that takes place at 11:00 PM in San Francisco on December 11 would prefer to treat the admission as having occurred on December 11 rather than advancing the date to December 12.

One exception to this rule would be a clinical system that processed patient data collected in a clinic and a nearby hospital that happens to be in a different time zone. Such applications may choose to convert the data to a common representation. Similar concerns apply to the transitions to and from daylight saving time. HL7 supports such requirements by requiring that the time zone information be present when the information is sent. It does not, however, specify which of the treatments discussed here will be applied by the receiving system.

XAD

Address

```
Components:  <street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^
             <zip or postal code(ST)> ^ <country (ID)> ^ < address type (ID)> ^ <other geographic
             designation (ST)>^ <county/parish code (IS)> ^ <census tract (IS)> ^ <address representation
             code (ID)>
```

Example:

```
|1234 Easy St.^Ste. 123^San Francisco^CA^95123^USA^B^^SF^^|
```

Street address (ST)

The street or mailing address of a person or institution.

Other designation (ST)

Second line of address. In general, it qualifies address. Examples: Suite 555 or Fourth Floor.

City (ST)

State or province (ST)

State or province should be represented by the official postal service codes for that country.

Zip or postal code (ST)

Zip or postal codes should be represented by the official codes for that country. In the US, the zip code takes the form 99999[-9999], while the Canadian postal code takes the form A9A-9A9.

Country (ID)

Defines the country of the address. See Table 0212.

Address type (ID)

Address type is optional.

Other geographic designation (ST)

Other geographic designation includes country, bioregion, SMSA, etc.

County/parish code (IS)

A code that represents the county in which the specified address resides. Refer to *user-defined table 0289 - County/parish*. When this component is used to represent the county (or parish), component 8 "other geographic designation" should not duplicate it (i.e., the use of "other geographic designation" to represent the county is allowed only for the purpose of backward compatibility, and should be discouraged in this and future versions of HL7).

Census tract (IS)

An optional code that represents the census track in which the specified address resides. VIIS does not store this value.

XCN

Extended Composite ID Number and Name for Persons

VIIS uses this data type only to identify Provider Organizations that administer immunizations. See the field notes for segment RXA.

XPN

Extended Person Name

```
Components:  <family name (ST)> & <last name prefix (ST)> ^ <given name (ST)> ^ <middle initial or name
             (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (ST)> ^
             <name type code (ID) > ^ <name representation code (ID)>
```

Example:

```
|Smith&St^John^J^III^DR^PHD^L|
```

Family name (ST)
Last Name Prefix (ST)
Given name (ST)
Middle initial or name (ST)

Suffix (ST)

Used to specify a name suffix (e.g., Jr. or III).

Prefix (ST)

Used to specify a name prefix (e.g., Dr.).

Degree (ST)

Used to specify an educational degree (e.g., MD).

Name type code (ID)

A code that represents the type of name. Refer to *HL7 table 0200 - Name type* for valid values.

Table 0200 - Name type

Value	Description
A	Alias Name
L	Legal Name
D	Display Name
M	Maiden Name
C	Adopted Name

Note:	The legal name is the same as the current married name.

Name representation code (ID)

This component can be used when names are represented in ideographic or non-alphabetic systems. VIIS ignores this component.

XTN

Extended Telecommunication Number

```
Components:  [NNN] [(999)]999-9999 [X99999] [B99999] [C any text] ^ <telecommunication use code (ID)> ^
             <telecommunication equipment type (ID)> ^ <email address (ST)> ^ <country code (NM)> ^
             <area/city code (NM)> ^ <phone number (NM)> ^ <extension (NM)> ^ <any text (ST)>
```

Example:

```
(415)555-3210^ORN^FX^
```

[(999)] 999-9999 [X99999] [C any text]

Defined as the TN data type, except that the length of the country access code has been increased to three.

Telecommunication use code (ID)

A code that represents a specific use of a telecommunication number. Refer *to HL7 table 0201 - Telecommunication use code* for valid values.

Table 0201 - Telecommunication use code

Value	Description
PRN	Primary Residence Number
ORN	Other Residence Number
WPN	Work Number
VHN	Vacation Home Number
ASN	Answering Service Number
EMR	Emergency Number
NET	Network (email) Address
BPN	Beeper Number

Telecommunication equipment type (ID)

A code that represents the type of telecommunication equipment. Refer *to HL7 table 0202 - Telecommunication equipment type* for valid values.Table 0202 - Telecommunication equipment type

Value	Description
PH	Telephone
FX	Fax
MD	Modem
CP	Cellular Phone
BP	Beeper
Internet	Internet Address: Use Only If Telecommunication Use Code Is NET
X.400	X.400 email address: Use Only If Telecommunication Use Code Is NET

Email address (ST)
Country code (NM)
Area/city code (NM)
Phone number (NM)
Extension (NM)
Any text (ST)

Appendix B -- HL7 Tables

The following tables give valid values for fields in the segments defined above, in the cases where the field definitions reference an HL7 table number. The tables are considered to be part of the HL7 standard, but those tables designated as type User have values determined by VIIS.

Type	Table	Name	Value	Description
HL7	0001	Sex		
	0001		F	Female
	0001		M	Male
	0001		O	Other
	0001		U	Unknown
HL7	0003	Event Type		
	0003		A31	ADT/ACK - Update patient information
	0003		V04	VXU - Unsolicited vaccination record update
HL7	0004	Patient class		
	0004		E	Emergency
	0004		I	Inpatient
	0004		O	Outpatient
	0004		P	Preadmit
	0004		R	Recurring
	0004		B	Obstetrics
HL7	0005	Race		
	0005		1002-5	American Indian or Alaska Native
	0005		2028-9	Asian
	0005		2076-8	Native Hawaiian or Other Pacific Islander
	0005		2054-5	Black or African-American
	0005		2106-3	White
	0005		2135-2	Hispanic or Latino
	0005		2186-5	Not Hispanic or Latino
	0005		2131-1	Other Race
	0005		Null	Unknown
HL7	0008	Acknowledgment Code		
	0008		AA	Application Accept
	0008		AE	Application Error
	0008		AR	Application Reject
User	0063	Relationship		
	0063		ASC	Associate
	0063		BRO	Brother
	0063		CGV	Care giver
	0063		CHD	Child
	0063		DEP	Handicapped dependent
	0063		DOM	Life partner
	0063		EMC	Emergency contact
	0063		EME	Employee
	0063		EMR	Employer
	0063		EXF	Extended family
	0063		FCH	Foster Child
	0063		FND	Friend
	0063		FTH	Father
	0063		GCH	Grandchild
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MGR	Manager
	0063		MTH	Mother
	0063		NCH	Natural child
	0063		NON	None
	0063		OAD	Other adult
	0063		OTH	Other
	0063		OWN	Owner
	0063		PAR	Parent
	0063		SCH	Stepchild

Type	Table	Name	Value	Description
	0063		SEL	Self
	0063		SIB	Sibling
	0063		SIS	Sister
	0063		SPO	Spouse
	0063		TRA	Trainer
	0063		UNK	Unknown
	0063		WRD	Ward of court
HL7	0064	Financial class		
	0064		V00	VFC eligibility not determined/unknown
	0064		V01	Not VFC eligible – (Insured, Vaccines Covered)
	0064		V02	VFC eligible – Medicaid/Medicaid Managed Care
	0064		V03	VFC eligible – Uninsured
	0064		V04	VFC eligible – American Indian/Alaskan Native
	0064		V05	VFC eligible – Federally Qualified Health Center Patient (under-insured)
	0064		V06	VFC eligible –Medicaid HMO
	0064		CH00	Not VFC eligible - FAMIS
	0064		IS01	VFC eligible – Underinsured at pvt Facility/Public Hospital/Health Dept
HL7	0076	Message Type		
	0076		ACK	General acknowledgment message
	0076		ADR	ADT response
	0076		ADT	ADT message
	0076		QCK	Query general acknowledgment
	0076		VXQ	Query for vaccination record
	0076		VXX	Vaccination query response with multiple PID matches
	0076		VXR	Vaccination query record response
	0076		VXU	Unsolicited vaccination record update
	0076		ORU	Unsolicited observation results
HL7	0085	Observation result status codes		
	0085		O	Order detail description only
HL7	0103	Processing ID		
	0103		P	Production
HL7	0104	Version ID		
	0104		2.3.1	Release 2.3.1 1999
	0104		2.4	Release 2.4 2000
HL7	0136	Yes/No Indicator		
	0136		Y	Yes
	0136		N	No
HL7	0155	Accept/Application Acknowledgment Conditions		
	0155		ER	Error/reject conditions only
HL7	0162	Route of Administration		
	0162		ID	Intradermal
	0162		IM	Intramuscular
	0162		IN	Intranasal
	0162		IV	Intravenous
	0162		PO	Oral
	0162		SC	Subcutaneous
	0162		TD	Transdermal
	0162		MP	Multiple Puncture (Small Pox)
HL7	0163	Administrative Site		
	0163		LT	Left Thigh
	0163		LA	Left Arm
	0163		LD	Left Deltoid
	0163		LG	Left Gluteus Medius

Type	Table	Name	Value	Description
	0163		LVL	Left Vastus Lateralis
	0163		LLFA	Left Lower Forearm
	0163		RA	Right Arm
	0163		RT	Right Thigh
	0163		RVL	Right Vastus Lateralis
	0163		RG	Right Gluteus Medius
	0163		RD	Right Deltoid
	0163		RLFA	Right Lower Forearm
HL7	0189	Ethnic Group		
	0189		2135-2	Hispanic
	0189		2186-5	Non-Hispanic
	0189		Null	Unknown
HL7	0203	Identifier Type		
	0203		BR	Birth Registry Number
	0203		MA	Medicaid Number
	0203		MC	Medicare Number
	0203		MR	Medical Record Number
	0203		PI	Patient Internal Identifier
	0203		PN	Person Number
	0203		PRN	Provider Number
	0203		PT	Patient External Identifier
	0203		RRI	Regional Registry ID
	0203		SR	State Registry Identifier
	0203		SS	Social Security Number
User	0212	Nationality		
	0212		CA	Canada
	0212		US	United States of America
User	0215	Publicity Code		
	0215		01	No reminder/recall
	0215		02	Yes reminder/recall – any method
HL7	0227	Manufacturers of vaccines (code = MVX)		
	0227		AB	Abbott Laboratories *(Ross Products Division)*
	0227		ACA	ACAMBIS
	0227		AD	Adams Laboratories
	0227		ALP	Alpha Therapeutic Corporation
	0227		AR	Armour (Inactive use AVB)
	0227		AVB	Aventis Behring L.L.C. (*Centeon and Armour Pharmaceutical*)
	0227		AVI	Aviron
	0227		BA	Baxter Healthcare Corporation (Inactive use BAH)
	0227		BAH	Baxter Healthcare Corporation (*Hyland, Immuno Intl. AG, and N. Amer. Vac*)
	0227		BAY	Bayer (Including Miles And Cutter)
	0227		BP	Berna Products (Inactive use BPC)
	0227		BPC	Berna (*Includes Swiss Serum And Vaccine Institute Berne (Vib*)
	0227		CEN	Centeon (Inactive use AVB)
	0227		CHI	Chiron Corporation
	0227		CMP	Celltech Medeva Pharmaceuticals (Inactive use PWJ)
	0227		CNJ	Cangene Corporation
	0227		CON	Connaught (Inactive use PMC)
	0227		CSL	CSL Biotherapies, Inc.
	0227		DVC	DynPort Vaccine Company, LLC
	0227		EVN	Evans Medical Limited (Inactive use PWJ)
	0227		GEO	GeoVax Labs, Inc.
	0227		GRE	Greer Laboratories Inc.

Type	Table	Name	Value	Description
	0227		IAG	Immuno International Ag (Inactive use BAH)
	0227		IM	Merieux (Inactive use PMC)
	0227		INT	Intercell Biomedical
	0227		IUS	Immuno-U.S., Inc.
	0227		JPN	Osaka University (Biken)
	0227		KGC	Korea Green Cross Corporation
	0227		LED	Lederle (Inactive use WAL)
	0227		MA	Massachusetts Public Health Biologic Lab (Inactive use MBL)
	0227		MBL	Massachusetts Biologics Laboratories
	0227		MED	Medimmune, Inc.
	0227		MIL	Miles (Inactive use BAY)
	0027		MIP	Bioport Corporation (formerly Michigan Biologic Prod Inst.)
	0227		MSD	Merck & Co., Inc.
	0227		NAB	NABI (formerly North American Biologicals)
	0227		NAV	North American Vaccine, Inc. (Inactive use BAH)
	0227		NOV	Novartis Pharmaceutical Corp. (*Ciba-Geigy and Sandoz*)
	0227		NVX	Novavax, Inc
	0227		NYB	New York Blood Center
	0227		OTC	Organon Teknika Corporation
	0227		ORT	Ortho-Clinical Diagnostics (formerly Ortho Diagnostic Systems, Inc.)
	0227		PMC	Aventis Pasteur (*Connaught and Pasteur Merieux*)
	0227		PD	Parkedale Pharmaceuticals (formerly Parke-Davis)
	0227		PRX	Praxis Biologics (Inactive use WAL)
	0227		PWJ	Powerject Pharmaceuticals (*Celltech Medeva and Evans Medical*)
	0227		SA	United States Army Medical Research and Material Command
	0227		SCL	Sclavo, Inc.
	0227		SI	Swiss Serum and Vaccine Inst. (Inactive use BPC)
	0227		SKB	GlaxoSmithKline (*SmithKline Beecham and Glaxo Wellcome*)
	0227		SOL	Solvay Pharmaceuticals
	0227		TAL	Talecris Biotherapeutics (includes Bayer Biologicals)
	0227		USA	Us Army Med Research
	0227		VXG	VaxGen
	0227		WA	Wyeth-Ayerst (Inactive use WAL)
	0227		WAL	Wyeth-Ayerst (*Lederle and Praxis*)
	0227		ZLB	ZLB Behring (includes Aventis Behring and Armour Pharmaceutical Company)
	0227		OTH	Other manufacturer
	0227		UNK	Unknown
User	0289	County/parish (Wisconsin only)		
	0289		VA001	Accomack
	0289		VA003	Albemarle
	0289		VA005	Alleghany
	0289		VA007	Amelia
	0289		VA009	Amherst
	0289		VA011	Appomattox
	0289		VA013	Arlington
	0289		VA015	Augusta
	0289		VA017	Bath
	0289		VA019	Bedford
	0289		VA021	Bland
	0289		VA023	Botetourt
	0289		VA025	Brunswick

Type	Table	Name	Value	Description
	0289		VA027	Buchanan
	0289		VA029	Buckingham
	0289		VA031	Campbell
	0289		VA033	Caroline
	0289		VA035	Carroll
	0289		VA036	Charles City
	0289		VA037	Charlotte
	0289		VA041	Chesterfield
	0289		VA043	Clarke
	0289		VA045	Craig
	0289		VA047	Culpeper
	0289		VA049	Cumberland
	0289		VA051	Dickenson
	0289		VA053	Dinwiddie
	0289		VA057	Essex
	0289		VA059	Fairfax
	0289		VA061	Fauquier
	0289		VA063	Floyd
	0289		VA065	Fluvanna
	0289		VA067	Franklin
	0289		VA069	Frederick
	0289		VA071	Giles
	0289		VA073	Gloucester
	0289		VA075	Goochland
	0289		VA077	Grayson
	0289		VA079	Greene
	0289		VA081	Greensville
	0289		VA083	Halifax
	0289		VA085	Hanover
	0289		VA087	Henrico
	0289		VA089	Henry
	0289		VA091	Highland
	0289		VA093	Isle of Wight
	0289		VA095	James City
	0289		VA097	King and Queen
	0289		VA099	King George
	0289		VA101	King William
	0289		VA103	Lancaster
	0289		VA105	Lee
	0289		VA107	Loudoun
	0289		VA109	Louisa
	0289		VA111	Lunenburg
	0289		VA113	Madison
	0289		VA115	Mathews
	0289		VA117	Mecklenburg
	0289		VA119	Middlesex
	0289		VA121	Montgomery
	0289		VA125	Nelson
	0289		VA127	New Kent
	0289		VA131	Northampton
	0289		VA133	Northumberland
	0289		VA135	Nottoway
	0289		VA137	Orange
	0289		VA139	Page
	0289		VA141	Patrick

Type	Table	Name	Value	Description
	0289		VA143	Pittsylvania
	0289		VA145	Powhatan
	0289		VA147	Prince Edward
	0289		VA149	Prince George
	0289		VA153	Prince William
	0289		VA155	Pulaski
	0289		VA157	Rappahannock
	0289		VA159	Richmond
	0289		VA161	Roanoke
	0289		VA163	Rockbridge
	0289		VA165	Rockingham
	0289		VA167	Russell
	0289		VA169	Scott
	0289		VA171	Shenandoah
	0289		VA173	Smyth
	0289		VA175	Southampton
	0289		VA177	Spotsylvania
	0289		VA179	Stafford
	0289		VA181	Surry
	0289		VA183	Sussex
	0289		VA185	Tazewell
	0289		VA187	Warren
	0289		VA191	Washington
	0289		VA193	Westmoreland
	0289		VA195	Wise
	0289		VA197	Wythe
	0289		VA199	York
	0289		VA510	Alexandria (city)
	0289		VA515	Bedford (city)
	0289		VA520	Bristol (city)
	0289		VA530	Buena Vista (city)
	0289		VA540	Charlottesville (city)
	0289		VA550	Chesapeake (city)
	0289		VA560	Clifton Forge (city)
	0289		VA570	Colonial Heights (city)
	0289		VA580	Covington (city)
	0289		VA590	Danville (city)
	0289		VA595	Emporia (city)
	0289		VA600	Fairfax (city)
	0289		VA610	Falls Church (city)
	0289		VA620	Franklin (city)
	0289		VA630	Fredericksburg (city)
	0289		VA640	Galax (city)
	0289		VA650	Hampton (city)
	0289		VA660	Harrisonburg (city)
	0289		VA670	Hopewell (city)
	0289		VA678	Lexington (city)
	0289		VA680	Lynchburg (city)
	0289		VA683	Manassas (city)
	0289		VA685	Manassas Park (city)
	0289		VA690	Martinsville (city)
	0289		VA700	Newport News (city)
	0289		VA710	Norfolk (city)
	0289		VA720	Norton (city)
	0289		VA730	Petersburg (city)

Type	Table	Name	Value	Description
	0289		VA735	Poquoson (city)
	0289		VA740	Portsmouth (city)
	0289		VA750	Radford (city)
	0289		VA760	Richmond (city)
	0289		VA770	Roanoke (city)
	0289		VA775	Salem (city)
	0289		VA780	South Boston (city)
	0289		VA790	Staunton (city)
	0289		VA800	Suffolk (city)
	0289		VA810	Virginia Beach (city)
	0289		VA820	Waynesboro (city)
	0289		VA830	Williamsburg (city)
	0289		VA840	Winchester (city)
NIP	NIP001	Immunization Information Source		
	NIP001		00	New Immunization Record
	NIP001		01	Historical Information
NIP	NIP002	Substance Refusal Reason		
	NIP002		00	Parental Refusal
	NIP002		01	Religious Exemption
NIP	NIP004	Contraindications, Precautions		
	NIP004		01	Recipient condition-unspecified
	NIP004		02	Household condition-unspecified
	NIP004		03	Allergy to baker's yeast (anaphylactic)
	NIP004		04	Allergy to egg ingestion (anaphylactic)
	NIP004		05	Allergy to gelatin (anaphylactic)
	NIP004		06	Allergy to neomycin (anaphylactic)
	NIP004		07	Allergy to streptomycin (anaphylactic)
	NIP004		08	Allergy to thimerosal (anaphylactic)
	NIP004		09	Allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)
	NIP004		10	Anaphylactic (life-threatening) reaction of previous does of this vaccine
	NIP004		11	Collapse or shock like state within 48 hours of previous dose of DTP/DTaP
	NIP004		12	Convulsions (fits, seizures) within 3 days of previous dose of DTP/DTaP
	NIP004		13	Persistent, inconsolable crying lasting 3 hours within 48 hours of previous dose of DTP/DTaP
	NIP004		14	Current diarrhea, moderate to severe
	NIP004		15	Encephalopathy within 7 days of previous dose of DTP
	NIP004		16	Current fever with moderate-to-severe illness
	NIP004		17	Fever of 40.5 C (105 F) within 48 hours of previous dose of DTP/DTaP
	NIP004		18	Guillain-Barre Syndrome (GBS) within 6 weeks after vaccine containing DTP/DTaP
	NIP004		19	HIV infection (in household contact)
	NIP004		20	HIV infection (in recipient)
	NIP004		21	Current acute illness, moderate to severe (with or without fever) (e.g. diarrhea, otitis media, vomiting)
	NIP004		22	Chronic illness (e.g. chronic gastrointestinal disease)
	NIP004		23	IG/Blood product received
	NIP004		24	Immunity: diphtheria
	NIP004		25	Immunity: Haemophilus influenzae type B (Hib)
	NIP004		HEPA_I	Immunity: hepatitis A
	NIP004		26	Immunity: Hep B
	NIP004		27	Immunity: measles
	NIP004		28	Immunity: mumps
	NIP004		29	Immunity: pertussis
	NIP004		30	Immunity: poliovirus

Type	Table	Name	Value	Description
	NIP004		31	Immunity: rubella
	NIP004		32	Immunity: tetanus
	NIP004		33	Immunity: varicella
	NIP004		33A	History of Chicken Pox/Varicella
	NIP004		34	Immunodeficiency (family history)
	NIP004		35	Immunodeficiency (household contact)
	NIP004		36	Immunodeficiency (in recipient)
	NIP004		37	Neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)
	NIP004		38	Otitis media (ear infection) moderate to severe (with or without fever)
	NIP004		39	Pregnancy (in recipient)
	NIP004		40	Thrombocytopenia
	NIP004		41	Thrombocytopenia purpura (history)
	NIP004		44	Allergy to Latex (anaphylactic)
	NIP004		45	Immunity: Rabies
	NIP004		50	History of: Vaccinia (Small Pox)
	NIP004		51	History of: Yellow Fever
	NIP004		52	History of: Pneumococcal
	NIP004		53	History of: Rotavirus
	NIP004		54	History of: Meningococcal
	NIP004		55	History of: Human papilloma virus
	NIP004		56	History of: Viral hepatitis, Type A
	NIP004		57	History of: Anthrax
	NIP004		58	History of: Typhoid
	NIP004		59	History of: Japanese Encephalitis
	NIP004		61	Previous history of intussusception
	NIP004		62	History of Arthus hypersensitivity reaction to a tetanus-containing vaccine administration < 10 yrs previous
	NIP004		63	Member of special group
	NIP004		64	Rash within 14 days of dose
	NIP004		65	Intussusecption within 30 days of dose
	NIP004		66	Allergy to alum (anaphylactic)
	NIP004		67	Allergy to Polymyrix B
	NIP004		68	Allergy to proteins of rodent or neural (anaphylactic)
	NIP004		69	Allergy to phenoxyethanol
	NIP004		HEPA 1	Immunity: Hep A
	NIP004		ME01	Medical Exemption-All Childhood Vaccines
	NIP004		ME02	Medical Exemption-DTaP
	NIP004		ME03	Medical Exemption-MMR
	NIP004		ME04	Medical Exemption-Varicella
	NIP004		P1	Refusal to DT
	NIP004		P10	Refusal of Smallpox
	NIP004		P2	Refusal of DT/aP
	NIP004		P3	Refusal of HepB
	NIP004		P4	Refusal of Hib
	NIP004		P5	Refusal of MMR
	NIP004		P6	Refusal of Pneumococcal
	NIP004		P7	Refusal of Polio
	NIP004		P8	Refusal of Td
	NIP004		P9	Refusal of Varicella
	NIP004		PALL	Refusal of All Childhood Vaccines
	NIP004		PB	Refusal of Hep A
	NIP004		PC	Refusal of Influenza
	NIP004		PD	Refusal of HPV
	NIP004		PE	Refusal of Meningitis

Type	Table	Name	Value	Description
	NIP004		PF	Vaccine Not Available - DT
	NIP004		PG	Vaccine Not Available - DTaP
	NIP004		PH	Vaccine Not Available - Hep A
	NIP004		PI	Vaccine Not Available - Hep B
	NIP004		PJ	Vaccine Not Available - Hib
	NIP004		PK	Vaccine Not Available - HPV
	NIP004		PL	Vaccine Not Available - Meningitis
	NIP004		PM	Vaccine Not Available - MMR
	NIP004		PN	Vaccine Not Available - Pneumococcal
	NIP004		PO	Vaccine Not Available - Polio
	NIP004		PP	Vaccine Not Available - Td
	NIP004		PQ	Vaccine Not Available - Varicella
	NIP004		PR	Vaccine Not Available - Influenza
	NIP004		PS	Religious Exemption - All Childhood
	NIP004		PT	Refusal of Tdap
	NIP004		PU	Refusal of Zoster
	NIP004		PV	Vaccine not available: Tdap
	NIP004		R1	Clinician has decided to repeat the DTAP series
	NIP004		R2	Clinician has decided to repeat the Hep B series
	NIP004		R3	Clinician has decided to repeat the HIB series
	NIP004		R4	Clinician has decided to repeat the Polio series
	NIP004		R5	Clinician has decided to repeat the MMR series
	NIP004		R6	Clinician has decided to repeat the Pneumococcal series
	NIP004		R7	Clinician has decided to repeat the Varicella series
	NIP004		RABEXP	Client has been exposed to rabies

Type	Table	Name	Value	Description
	NIP004		40	Thrombocytopenia
	NIP004		41	Thrombocytopenic purpura (history)
NIP	NIP005	Event Consequence		
	NIP005		D	Patient Died
	NIP005		L	Life threatening illness
	NIP005		E	Required emergency room/doctor visit
	NIP005		H	Required hospitalization
	NIP005		P	Resulted in prolongation of hospitalization
	NIP005		J	Resulted in permanent disability
NIP	NIP006	Patient Registry Status		
	NIP006		A	Active
	NIP006		N	Inactive
	NIP006		P	Permanently inactive (dead)
VIIS	VIIS001	Reaction Codes		
	VIIS001		PERTCONT	Pertussis allergic reaction
	VIIS001		REDNESS	Redness or swelling at vaccination site
	VIIS001		TETCONT	Tetanus allergic reaction
	VIIS001		HYPOTON	Hypotonic-hyporesponsive collapse within 48 hours of immunization
	VIIS001		SEIZURE	Seizure occurring within 3 days
	VIIS001		CRYING	Persistent crying lasting >= 3 hours within 48 hours of immunization
	VIIS001		FEVER105	Temperature >= 105 (40.5 C) within 48 hours of immunization
VIIS	WVGC	Vaccine Group Code (WVGC)		
	WVGC		Adeno	Adeno
	WVGC		Anthrax	Anthrax
	WVGC		BCG	BCG
	WVGC		Cholera	Cholera
	WVGC		Diphtheria	Diphtheria Antitoxin
	WVGC		DTP/aP	Diphtheria, Tetanus, Acellular Pertussis
	WVGC		Encephalitis	Encephalitis
	WVGC		Flu H1N1-09	Novel Influenza-H1N1-09 all formulations
	WVGC		HepA	Hepatitis A
	WVGC		HepB	Hepatitis B
	WVGC		Hib	Hib
	WVGC		HPV	Human Papilloma Virus
	WVGC		Ig	Ig
	WVGC		Influenza	Influenza
	WVGC		Lyme	Lyme
	WVGC		Measles	Measles Virus Vaccine
	WVGC		MMR	Measles, Mumps, Rubella
	WVGC		Meningo	Meningitis
	WVGC		Mumps	Mumps Virus Vaccine
	WVGC		Plague	Plague
	WVGC		Pneumococcal	Pneumonia Conjugate
	WVGC		Pneumo-Poly	Pneumonia Polysaccharide
	WVGC		Polio	Poliomyelitis
	WVGC		Rabies	Rabies
	WVGC		Rotavirus	Rotavirus
	WVGC		Rubella	Rubella Virus Vaccine
	WVGC		Tetanus	Tetanus Diphtheria
	WVGC		Td	Tetanus Diphtheria
	WVGC		Typhoid	Typhoid
	WVGC		Smallpox	Vaccinia
	WVGC		Varicella	Varicella

Type	Table	Name	Value	Description
	WVGC		Yellow Fever	Yellow Fever
	WVGC		Zoster	Zoster (shingles), live
VIIS	WVTN	Vaccine Trade Name (WVTN)		
	WVTN		ACAM2000	Smallpox
	WVTN		Acel-Imune	DTaP
	WVTN		ActHib	Hib-PRP-T
	WVTN		Adeno T4	Adeno T4
	WVTN		Adeno T7	Adeno T7
	WVTN		Afluria	Influenza
	WVTN		Afluria, Preservative Free	Preservative-Free Influenza
	WVTN		Agriflu	Preservative-Free Influenza
	WVTN		Anthrax	Anthrax
	WVTN		Attenuvax	Measles
	WVTN		BabyBIG	Botulism
	WVTN		BayTet	TIg
	WVTN		BCG-Cancer	BCG-BC
	WVTN		BCG-TB	BCG-TB
	WVTN		Biavax II	Rubella-Mumps
	WVTN		BIG	Botulism
	WVTN		Botulinum-antitoxin	Botulinum-antitoxin
	WVTN		Botulism	Botulism
	WVTN		Certiva	DTaP
	WVTN		Cervarix	HPV, Bivalent
	WVTN		Cholera-I	Cholera-Inject
	WVTN		Cholera-O	Cholera-Oral
	WVTN		CMV-IgIV	CMV-IgIV
	WVTN		Comvax	HepB-Hib
	WVTN		DAPTACEL	DTaP,5 pertussis antigens
	WVTN		DECAVAC	Td
	WVTN		Diphtheria	Diphtheria
	WVTN		Diphtheria-antitoxin	Diphtheria-antitoxin
	WVTN		Dryvax	Smallpox
	WVTN		DT	DT-Peds
	WVTN		DTP	DTP
	WVTN		Engerix-B Adult	HepB-Adult
	WVTN		Engerix-B dialysis	HepB-Dialysis 4 dose
	WVTN		Engerix-B Peds	HepB-Peds
	WVTN		Flebogamma	IgIV
	WVTN		Fluarix	Preservative-Free Influenza
	WVTN		Flu-Deleted	FLU, NOS
	WVTN		Flu-Imune	Influenza
	WVTN		Flu-Mist	FLU-Nasal
	WVTN		Flu-Shield	Influenza
	WVTN		Fluogen	Influenza
	WVTN		FluLaval	Influenza
	WVTN		Fluvirin	Influenza
	WVTN		Fluvirin, Preservative-free	Preservative-Free Influenza
	WVTN		Fluzone	Influenza
	WVTN		Fluzone, High-Dose	Preservative-Free High-Dose Influenza
	WVTN		Fluzone, Preservative-free	Preservative-Free Influenza
	WVTN		Gardasil	HPV, Quadrivalent
	WVTN		Havrix-Adult	HepA-Adult
	WVTN		Havrix-Peds 2 Dose	HepA-Ped 2 Dose

Type	Table	Name	Value	Description
	WVTN		Havrix-Peds 3 Dose	HepA-Peds
	WVTN		HBIg	HBIg
	WVTN		Hib-TITER	Hib-HbOC
	WVTN		Hiberix	Hib-PRP-T
	WVTN		Ig	Ig
	WVTN		IgIV	IgIV
	WVTN		Imovax Rabies ID	Rabies-ID
	WVTN		Imovax Rabies IM	Rabies-IM
	WVTN		Infanrix	DTaP
	WVTN		IPOL	Polio-Inject
	WVTN		Ixiaro	Japanese Encephalitis-IM
	WVTN		JE-Vax	Japanese Enceph - SC
	WVTN		LYMErix	Lyme
	WVTN		M-R-VAX	Measles-Rubella
	WVTN		Measles	Measles
	WVTN		Measles-Rubella (MERU)	Measles-Rubella
	WVTN		Menactra	Meningococcal conjugate vaccine
	WVTN		MENOMUNE	Meningococcal
	WVTN		MENVEO	Meningococcal-MCV4
	WVTN		Meruvax II	Rubella
	WVTN		MMR II	MMR
	WVTN		MMRV	MMRV
	WVTN		Mumps	Mumps
	WVTN		Mumps-Rubella (MURU)	Rubella-Mumps
	WVTN		Mumpsvax	Mumps
	WVTN		OmniHib	Hib-PRP-T
	WVTN		ORIMUNE	Polio-Oral
	WVTN		Pediarix	DTAP/Polio/Hep B
	WVTN		PedvaxHIB	Hib-OMP
	WVTN		Plague	Plague
	WVTN		Pneumovax 23	Pneumococcal 23
	WVTN		PNU-IMUNE 23	Pneumococcal 23
	WVTN		Prevnar 7	Pneumo-Conjugate
	WVTN		Prevnar 13	Pneumococcal conjugate vaccine, 13 valent
	WVTN		ProHIBit	Hib-PRP-D
	WVTN		RabAvert	Rabies-IM
	WVTN		Recombivax Peds	HepB-Peds
	WVTN		Recombivax-Adult	HepB-Adult
	WVTN		Recombivax-Dialysis	HepB-Dialysis 4 dose
	WVTN		Rho(D)Full	Rho(D)Full
	WVTN		Rho(D)IV	Rho(D)IV
	WVTN		Rho(D)Mini	Rho(D)Mini
	WVTN		RIg	RIg
	WVTN		RIg-HT	RIg-HT
	WVTN		Rotarix	Rotavirus, monovalent live
	WVTN		RotaShield	Rotavirus tetravalent live oral (removed on 10/16/1999)
	WVTN		RotaTeq	Roatvirus pentavalent (after 02/02/2006)
	WVTN		RSV-IgIM	RSV-IgIM
	WVTN		RSV-IgIV	RSV-IgIV
	WVTN		Rubella	Rubella
	WVTN		Td	Td
	WVTN		Tetramune	DTP-Hib
	WVTN		TIg	TIg
	WVTN		TriHIBit	DTaP-Hib
	WVTN		Tripedia	DTaP

Type	Table	Name	Value	Description
	WVTN		TT	Tetanus
	WVTN		Twinrix	HepA-HepB Adult
	WVTN		Typhim Vi	Typhoid-ViCPs
	WVTN		Typhoid	Typhoid-HP
	WVTN		Typhoid-AKD	Typhoid-AKD
	WVTN		Vaccinia (smallpox), diluted	Vaccinia (smallpox), diluted
	WVTN		Vaccinia immune globulin VIG	Vaccinia immune globulin VIG
	WVTN		VAQTA-Adult	HepA-Adult
	WVTN		VAQTA-Peds 2 Dose	HepA-Ped 2 Dose
	WVTN		VAQTA-Peds 3 Dose	HepA-Peds
	WVTN		Varivax	Varicella
	WVTN		Vivotif Berna/Ty21a	Typhoid-Oral
	WVTN		VZIg	VZIg
	WVTN		YF-VAX	Yellow Fever
	WVTN		Zostavax	Zoster, live

CPT Codes (WCPT) and CVX Codes (292)

CPT	CVX	Group	Vaccine	Trade Name	Description	MFG
90476	54	Adeno	Adeno T4	Adeno T4	Adenovirus type 4, live oral	WAL
90477	55		Adeno T7	Adeno T7	Adenovirus type 7, live oral	WAL
	82		Adeno, NOS		Recorded as CVX 54	
90581	24	Anthrax	Anthrax	Anthrax	Anthrax	MIP
90585	19	BCG	BCG-TB	BCG-TB	Bacillus Calmette-Guerin TB	OTC
90586			BCG-BC	BCG-BC	Bacillus Calmette-Guerin bladder cancer	OTC
90728			BCG, NOS		BCG, NOS	
90725	26	Cholera	Cholera-Injectable	Cholera-I	Cholera injectable	CHI
90592			Cholera-Oral	Cholera-O	Cholera Oral	CHI
90719		Diphtheria	Diphtheria	Diphtheria	Diphtheria	PD
90700	20	DTP/aP	DTaP	Acel-Imune	Diphtheria, tetanus, acellular pertussis	WAL
				Certiva		BAH
				Infanrix		SKB
				Tripedia		PMC
90701	01		DTP	DTP	Diphtheria, tetanus, whole cell pertussis	PMC
90702	28		DT	DT	Diphtheria tetanus pediatric	PMC
90720	22		DTP-Hib	Tetramune	DTP – Hib combination	WAL
90721	50		DTaP-Hib	TriHIBit	DtaP-Hib combination	PMC
90723	110		DTAP-HepB-Polio	Pediarix	DTAP-HepB-Polio combination	SKB
90698	120		DTAP-Hib-IPV	Pentacel	DTAP-Hib-Polio combination	PMC
90696	130		DTAP-IPV	KINRIX	DTAP-Polio combination	SKB
	106		DTAP, 5 pertussis antigens	DAPTACEL	Diphtheria, tetanus, acellular pertussis, 5 antigens	PMC
	107		DTaP, NOS		Recorded as CVX 20	
90655		Influenza	Influenza, Preservative-Free	Afluria, Preservative Free	Influenza preservative free	CSL
				Fluvirin, Preservative Free		CHI
				Fluzone Preservative free		PMC
90656	140			Afluria, Preservative Free		CSL
				Agriflu		NOV
				Fluarix		SKB
				Flurivin, Preservative Free		CHI
				Fluzone, Preservative Free		PMC
90657			Influenza	Afluria	Influenza split virus	CSL
				Flu-Immune		WAL
				Flu-Shield		WAL
				FluLaval		PMC
				Fluogen		PD
				Fluvirin		CHI
	141			Fluzone		PMC
90658				Afluria		CSL
				Flu-Immune		WAL
				Flu-Shield		WAL
				FluLaval		PMC
				Fluogen		PD
				Fluvirin		CHI
				Fluzone		PMC
90659	16		Influenza, Whole virus		Influenza whole virus	
90660	111		Flu-nasal	Flu-Mist	Influenza live, for intranasal use	WAL
90662	135		Influenza High-Dose Preservative Free	Fluzone High-Dose	High-Dose Preservative Free	PMC
90724	88		Influenza, NOS	Flu-Deleted	Influenza, NOS	

90663	125	Flu H1N1-09	Novel Influenza-H1N1-09, nasal	H1N1 Flu-Nasal	Novel Influenza-H1N1-09, nasal	MED
	126		Novel Influenza-H1N1-09, preserve-free	H1N1 Afluria, P-free	Novel Influenza-H1N1-09, preserve-free	CSL
				H1N1 Fluvirin, P-free		NOV
				H1N1 Fluzone, P-free		PMC
	127		Novel Influenza-H1N1-09	H1N1 Afluria	Novel Influenza-H1N1-09	CSL
				H1N1 Fluvirin		NOV
				H1N1 Fluzone		PMC
	128		Novel Influenza-H1N1-09 all formulations		Novel Influenza-H1N1-09 all formulations	
	128	Flu H1N1-09	Novel Influenza-H1N1-09 all formulations	H1N1 Flu-Nasal	Novel Influenza-H1N1-09, live virus for nasal administration	MED
				H1N1 Afluria, P-free	Novel Influenza-H1N1-09, preservative –free	MED
				Novel influenza-H1N1-09,-I	Novel influenza-H1N1-09, injectable	
90632	52	HepA	HepA adult	Havrix adult	Hepatitis A adult	SKB
				VAQTA adult		MSD
90633	83		HepA ped-2 dose	Havrix ped/adol 2 dose	Hepatitis A pediatric/adolescent 2 dose	SKB
				VAQTA ped-2		MSD
90634	84		HepA ped-3 dose	Havrix ped/adol 3 dose	Hepatitus A pediatric/adolescent 3 dose	SKB
				VAQTA ped-3		MSD
90636	104		HepA-HepB Adult	Twinrix	Hepatitus A & Hepatitus B adult	SKB
90730	85		Hep A, NOS		Hep A, NOS	
	31		Hep A-peds, NOS		Recorded as CVX 85	
90636	104	HepB	HepA-HepB Adult	Twinrix	DTAP-HepB-Polio combination	SKB
90723	110		DTAP-HepB-Polio	Pediarix	Hep B, NOS	
90731	45		Hep B, NOS		Hepatitis B Dialysis 3 dose	
90740	44		Hep B-dialysis 3 dose		Hepatitis B Dialysis 3 dose	MSD
90743	43		HepB adult	Recombivax-Adult	Hepatitis B adult dose 1ml	MSD
				Engerix-B-Adult		SKB
90744	08		HepB pediatric	Recombivax-Peds	Hepatitis B pediatric/adolescent .5ml	MSD
				Engerix-B-Peds		SKB
90745	42		Hep B, adolescent/high risk infant		Hep B, adolescent/high risk infant	
90746	43		HepB adult	Recombivax-Adult	Hepatitis B adult dose 1ml	MSD
				Engerix-B-Adult		SKB
90747	44		HepB-dialysis 4 dose	Recombivax-dialysis	Hepatitis B Dialysis 4 dose	MSD
				Engerix-B dialysis		SKB
90748	51		HepB-Hib	Comvax	HepB-Hib Combination	MSD
			HepB-Unspecified			
90645	47	Hib	Hib-HbOC	HibTITER	Hemophilus influenza b HbOC 4 dose	WAL
90646	46		Hib-PRP-D	ProHIBit	Hemophilus influenza b PRP-D booster	PMC
90647	49		Hib-OMP	PedvaxHIB	Hemophilus influenza b OMP 3 dose	MSD
90648	48		Hib-PRP-T	OmniHib	Hemophilus influenza b PRP-T 4 dose	PMC
				ActHib		
				Hiberix		SKB
90720	22		DTP-Hib	Tetramune	DTP – Hib combination	WAL
90721	50		DtaP-Hib	TriHIBit	DtaP-Hib combination	PMC
90737	17				Hib, NOS	
90748	51		HepB-Hib	Comvax	HepB-Hib Combination	MSD
90698	120		DtaP-Hib-IPV	Pentacel	DtaP-Hib-IPV combination	PMC
			Hib-Unspecified			
90649	62	HPV	HPV, Quadrivalent	Gardasil	Human Papilloma Virus, Quadrivalent	MSD
90650	118		HPV, Bivalent	Cervarix	Human Papilloma Virus, Bivanet	SKB
	137		HPV, NOS		Human Papilloma Virus	
90281	86	Ig	Ig	Ig	Ig human	
90283	87		IgIV	IgIV	Ig IV human	
				Flebogamma		
90287	27		Botulinum-antitoxin	Botulinum-antitoxin	Botulinum antitoxin equine	
90288			Botulism	BabyBIG	Botulism Immune Globulin	
				Botulism		
				BIG		
90291	29		CMV-IgIV	CMV-IgIV	Cytomegalovirus Ig IV human	

90741	14		Immune Globulin(ISG)			
90399			Ig	Ig	Unlisted immune globulin	
90296	12		Diphteria-antitoxin	Diphteria-antitoxin	Diphtheria antitoxin, equine	
90371	30		HBIg	HBIg	Hepatitis B Ig human	
90375	34		RIg	Rig	Rabies Ig human	
90376	34		RIg-HT	RIg-HT	Rabies Ig heat treated human	
90378	93		RSV-IgIM	RSV-IgIM	Respiratory syncytial virus Ig	
90379	71		RSV-IgIV	RSV-IgIV	Respiratory syncytial virus Ig IV	
90384			Rho(D)Full	Rho(D)Full	Rho(D)Ig RhIg human full-dose	
90385			Rho(D)Mini	Rho(D)Mini	Rho(D)Ig RhIg human mini-dose	
90386			Rho(D)IV	Rho(D)IV	Rho(D)Ig RhIg human IV	
90389	13		TiG	BayTet		
				TiG	Tetanus Ig human	
90393	79		Vaccinia immune globulin	Vaccinia-Ig	VacciniaIg human	
90396	36		VZIg	VZIg	Varicella-zoster Ig human	
90665	66	Lyme	Lyme	LYMErix	Lyme disease	SKB
90735	39	Encephalitis	Japanese encephalitis - SC	JE-Vax	Japanese encephalitis - SC	JPN
90738	134		Japanese encephalitis - IM	Ixiaro	Japanese encephalitis - IM	INT
90705	05	Measles	Measles	Measles	Measles live 1964-1974 (Eli Lilly)	MSD
				Attenuvax	Measles live	MSD
90708	04		Measles-Rubella	M-R-VAX	Measles and rubella live	MSD
				Measles-Rubella (MERU)		MSD
90704	07	Mumps	Mumps	Mumps		MSD
			Rubella-Mumps, NOS	Mumpsvax	Mumps 1950-1978	MSD
			Mumps		Mumps live	MSD
90709			Rubella-Mumps, NOS	Biavax II	Rubella and mumps live	MSD
	38		Rubella-Mumps	Mumps-Rubella (MURU)	Measles, mumps and rubella live	MSD
				MMR II		MSD
90707	03	MMR	MMR	MMRV	Measles, mumps, rubella, varicella live	MSD
90710	94		MMRV	Proquad	Measles, mumps, rubella, and varicella vaccine (MMRV), live, for subcutaneous use	MSD
90733	32	Meningo	Meningococcal MPSV4	Menomune	Meningococcal Polysaccharide Vaccine, Groups A, C, Y, W-135 Combined	PMC
90734	114		Meningococcal MCV4P	Menactra	Meningococcal Groups (A, C, Y, and W-135) Polysaccharide Diphtheria Toxoid Conjugate Vaccine	PMC
	136		Meningococcal MCV4O	Menveo	Meningococcal (Groups A, C, Y, and W-135) Oligosaccharide Diphtheria CRM197 Conjugate Vaccine	NOV
	147		Meningococcal MCV4		Meningococcal, MCV4, unspecified formulation(groups A, C, Y and W-135) This CVX should only be used for historical doses of meningococcal conjugate vaccine where the formulation is unknown.	
	108		Meningococcal, NOS		meningococcal vaccine, unspecified formulation	
90715	115	Pertussis	TdaP > 7 Years	Boostrix		SKB
				ORIMUNE	Poliovirus OPV live oral	WAL
90712	02	Polio	Polio oral	IPOL	Poliovirus inactivated IPV	PMC
90713	10		Polio injectable	Pentacel	DtaP-Hib-IPV combination	PMC
90698	120		DtaP-Hib-IPV	Pediarix	DTAP-HepB-Polio combination	SKB
90723	110		DTAP-HepB-Polio	KINRIX	DTAP-Polio combination	SKB
90696	130		DTAP-IPV		Polio, NOS	
	89		Polio-Unspecified	Plague	Plague	GRE
90727	23	Plague	Plague	PNU-IMUNE23	Pneumococcal polysaccharide 23 valent	WAL
90732	33	Pneumo-Poly	Pneumococcal 23	Pneumovax23	Pneumococcal conjugate polyvalent	MSD
				Prevnar 7		WAL
90669	100	Pneumococcal	Pneumo-conjugate	Prevnar 13	Pneumococcal conjugate , 13 valent	PFR
90670	133		Pneumococcal conjugate, 13 valent			
	109		Pneumococcal-Unspecified	RabAvert	Rabies intramuscular	CHI
90675	18	Rabies	Rabies-intramuscular	Imovax Rabies I.M.		PMC
				Imovax Rabies I.D.	Rabies intradermal	PMC
90676	40		Rabies-intradermal		Rabies not otherwise specified	

90726	90		Rabies-NOS	RotaShield	Rotavirus tetravalent (before 01/01/2000)	
90680	74	Rotavirus	Rotavirus, Tet		Rotavirus between 01/02/2000 and 12/31/2004)	
	122		Rotavirus	RotaTeq	Rotavirus pentavalent (after 01/01/2005)	MSD
	116		Rotavirus, Pent	Rotarix	Rotavirus-monovalent, live	SKB
90681	119		Rotavirus-monovalent	Rubella	Rubella live	MSD
90706	06	Rubella	Rubella	Meruvax II		MSD
				Measles-Rubella (MERU)	Measles and rubella live	MSD
90708	04		Measles-Rubella	M-R-VAX		MSD
					Rubella-Mumps, NOS	
90709			Rubella-Mumps NOS	Mumps-Rubella (MURU)	Rubella and mumps live	MSD
	38		Rubella-Mumps	Biavax II		MSD
				ACAM2000		ACA
				Dryvax	Vaccinia(Smallpox) dry	WAL
	75	Smallpox	Smallpox	Vaccinia (smallpox), diluted	Vaccinia (smallpox), diluted	
	105		Vaccinia (Smallpox), diluted		Vaccinia (Smallpox), diluted	PMC MBL
90718	09	Td	Td	Td	Tetanus and diphtheria adult	
90714	113		Td preservative free	Decavac	Td preservative free – CPT code is effective 7/1/2005	PMC
90714	113		Td preservative free	Tenivac	Td preservative free – CPT code is effective 02/01/2012	PMC
90715	115		TdaP > 7 Years	Adacel	TdaP > 7 years	PMC
				Boostrix		SKB
90703	35	Tetanus	Tetanus	TT	Recorded as CVX 35	
	112		Tetanus Toxoid, NOS	Vivotif Berna/Ty21a	Typhoid oral	
90690	25	Typhoid	Typhoid-oral	Typhim Vi	Typoid VI capsular polysaccharide	PMC
90691	101		Typhoid-ViCPs	Typhoid	Typhoid heat and phenol inactivated	
90692	41		Typhoid-H-P	Typhoid-AKD	Typhoid acetone-killed, dried (military)	
90693	53		Typhoid-AKD		Typhoid not otherwise specified (after 7/1/2005, no CPT code is associated with this vaccine group)	
90714	91		Typhoid-NOS			MSD
90710	94	Varicella	MMRV	MMRV	Measles, mumps, rubella, varicella live	MSD
90716	21		Varicella	Varivax	Varicella live	PMC
90717	37	Yellow Fever	Yellow Fever	YF-VAX	Yellow Fever	PMC
90736	121	Zoster	Zoster (shingles), live	Zostavax	Zoster (shingles), live	MSD